RQ-7Bv2 Shadow UAS
(version 3.0)

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Table Of Contents

6.1.2 Architectures and Standards Component

6.1.2.1 Operational View (OV)

6.1.2.2 Systems View (SV)

6.1.2.3 Technical View (TV)

6.1.3 Management, Evaluation, and Resource (MER) Processes Component

6.1.3.1 Management

6.1.3.1.1 Strategic Planning

6.1.3.1.2 Concept Development and Experimentation (CD&E)

6.1.3.1.3 Research and Studies

6.1.3.1.4 Policy and Guidance

6.1.3.1.5 Requirements Generation

6.1.3.1.6 Synchronization

6.1.3.1.7 Joint Training Support

6.1.3.2 Evaluation

6.1.3.2.1 Quality Assurance (QA)

6.1.3.2.2 Assessments

6.1.3.2.3 Customer Feedback

6.1.3.2.4 Lessons Learned/After-Action Reviews (AARs)

6.1.3.3 Resource

7.0 Operational Training Domain

7.1 Operational Training Concept and Strategy

7.1.1 Product Lines

7.1.1.1 Training Information Infrastructure

7.1.1.1.1 Hardware, Software, and Communications Systems

7.1.1.1.2 Storage, Retrieval, and Delivery

7.1.1.1.3 Management Capabilities

7.1.1.1.4 Other Enabling Capabilities

7.1.1.2 Training Products

7.1.1.2.1 Courseware

7.1.1.2.2 Courses

7.1.1.2.3 Training Publications

7.1.1.2.4 TSP

7.1.1.3 TADSS

7.1.1.3.1 Training Aids

7.1.1.3.2 Training Devices

7.1.1.3.3 Simulators

7.1.1.3.4 Simulations

7.1.1.3.5 Instrumentation

7.1.1.4 Training Facilities and Land

7.1.1.4.1 Ranges
7.1.1.4.2 Maneuver Training Areas (MTA)
7.1.1.4.3 Classrooms
7.1.1.4.4 CTCs
7.1.1.4.5 Logistics Support Areas
7.1.1.4.6 Mission Command Training Centers (MCTC)
7.1.1.5 Training Services
7.1.1.5.1 Management Support Services
7.1.1.5.2 Acquisition Support Services
7.1.1.5.3 General Support Services
7.1.2 Architectures and Standards Component
7.1.2.1 Operational View (OV)
7.1.2.2 Systems View (SV)
7.1.2.3 Technical View (TV)
7.1.3 Management, Evaluation, and Resource (MER) Processes Component
7.1.3.1 Management
7.1.3.1.1 Strategic Planning
7.1.3.1.2 Concept Development and Experimentation (CD&E)
7.1.3.1.3 Research and Studies
7.1.3.1.4 Policy and Guidance
7.1.3.1.5 Requirements Generation
7.1.3.1.6 Synchronization
7.1.3.1.7 Joint Training Support
7.1.3.2 Evaluation
7.1.3.2.1 Quality Assurance (QA)
7.1.3.2.2 Assessments
7.1.3.2.3 Customer Feedback
7.1.3.2.4 Lessons Learned/After-Action Reviews (AARs)
7.1.3.3 Resource Processes
8.0 Self-Development Training Domain
8.1 Self-Development Training Concept and Strategy
8.1.1 Product Lines
8.1.1.1 Training Information Infrastructure
8.1.1.1.1 Hardware, Software, and Communications Systems
8.1.1.1.2 Storage, Retrieval, and Delivery
8.1.1.1.3 Management Capabilities
8.1.1.1.4 Other Enabling Capabilities
8.1.1.2 Training Products
8.1.1.2.1 Courseware

8.1.1.2.2 Courses
8.1.1.2.3 Training Publications
8.1.1.2.4 Training Support Package (TSP)
8.1.1.3 Training Aids, Devices, Simulators and Simulations (TADSS)
8.1.1.3.1 Training Aids
8.1.1.3.2 Training Devices
8.1.1.3.3 Simulators
8.1.1.3.4 Simulations
8.1.1.3.5 Instrumentation
8.1.1.4 Training Facilities and Land
8.1.1.4.1 Ranges
8.1.1.4.2 Maneuver Training Areas (MTA)
8.1.1.4.3 Classrooms
8.1.1.4.4 CTCs
8.1.1.4.5 Logistics Support Areas
8.1.1.4.6 Mission Command Training Centers (MCTC)
8.1.1.5 Training Services
8.1.1.5.1 Management Support Services
8.1.1.5.2 Acquisition Support Services
8.1.1.5.3 General Support Services
8.1.2 Architectures and Standards Component
8.1.2.1 Operational View (OV)
8.1.2.2 Systems View (SV)
8.1.2.3 Technical View (TV)
8.1.3 Management, Evaluation, and Resource (MER) Processes Component
8.1.3.1 Management
8.1.3.1.1 Strategic Planning
8.1.3.1.2 Concept Development and Experimentation (CD&E)
8.1.3.1.3 Research and Studies
8.1.3.1.4 Policy and Guidance
8.1.3.1.5 Requirements Generation
8.1.3.1.6 Synchronization
8.1.3.1.7 Joint Training Support
8.1.3.2 Evaluation
8.1.3.2.1 Quality Assurance (QA)
8.1.3.2.2 Assessments
8.1.3.2.3 Customer Feedback
8.1.3.2.4 Lessons Learned/After-Action Reviews (AARs)
8.1.3.3 Resource Processes

A Milestone Annex

B References

C Coordination Annex

This System Training Plan (STRAP) is preliminary.
Front end analysis (mission, task, job) is ongoing. USAACE - Aviation School will amend and update this STRAP as details solidify.

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1.0 System Description

In this STRAP the reference to Shadow RQ-7Bv2 TUAS refers to the entire Tactical Unmanned Aircraft System (TUAS). If a single part of the system is being referenced then the name of the subsystem will be utilized; for example, if discussing the aircraft, Unmanned Aircraft (UA) will be utilized vice UAS.

The Shadow RQ-7Bv2 TUAS fielding concept will support the Army Aviation Transformation Plan. In 2nd Qtr FY 15, the first of 104 fielding sets will begin for the Active component, National Guard and Reserve units with the fielding priority to the FS CAB's and deploying units. Per the 3 September 2013 Draft fielding plan, fieldings are scheduled for completion 4th Qtr 2019.

Fielded platoons will be equipped with a complete Tactical Common Data Link (TCDL) System consisting of the following components : four (4) fixed-wing composite Shadow Unmanned Aircraft (UA) powered by an aviation-grade gasoline (AVGAS) AR741-1102 Wenkel engine in a push configuration, two (2) Universal Ground Control Stations (UGCS), two (2) Universal Ground Data Terminals (UGDT), two (2) One System Remote Video Terminals (OSRVT), one (1) Portable Ground Control Station (PGCS), one (1) Portable Ground Data Terminal (PGDT), two (2) Tactical Automated Landing Systems (TALS), two (2) launchers, five (5) High Mobility Multi-Wheeled Vehicles (HMMWV), one (1) Maintenance Section, Multifunctional (MSM), two (2) Air Vehicle Transports, one (1) Light Medium Tactical Vehicle (LMTV), three (3) Equipment Trailers, two (2) 15KW Generators, and two (2) arresting gear assemblies.

At a minimum, the rapidly reconfigurable Shadow RQ-7Bv2 will be equipped with the current RQ-7B Mission Equipment Package (MEP) and could incorporate the use of a "sense and avoid" system to enable greater employment within the National Airspace System (NAS). The airframe will also feature a quick disconnect capability for hasty payload replacement. The system will utilize a Standard Equipment Package (SEP) to provide a robust communications and navigations suite that facilitates collection and dissemination of critical information throughout the supported Brigade battle space.

To maintain an optimal operational tempo while deployed and to ensure the successful leverage of the technological improvements, the force structure of the Shadow RQ-7Bv2 TUAS platoon has been increased for select units, matching the Force Design Update that was proposed for operation of RQ-7B platoons. This design capability facilitates surge or continuous usage of a system that was designed initially to provide Combatant Commanders at the Brigade Combat Team (BCT) level and below with an extended range platform capable of

conducting Reconnaissance, Surveillance, and Target Acquisition (RSTA), Command and Control (C2), Signals Intelligence (SIGINT), Electronic Warfare (EW), and special operation missions during peacetime and an array of diverse missions in war against defended or denied areas of the battlefield.

More recently, Field Commanders, through the use of Operational Need Statements (ONS), have expressed the desire to augment the system with varying payload configurations that enable Shadow RQ-7Bv2 TUAS utilization in alternative missions. Laser Designator, Lethal and Non-Lethal Armaments, Communications Relay, SIGINT Payloads, and Counter Improvised Explosive Device (CIED) sensors are examples of some of the existing and proposed payload and mission equipment options. The Shadow RQ-7Bv2 TUAS will provide Commanders with improved actionable RSTA capabilities in a timely manner on the battlefield.

2.0 Target Audience

TARGET AUDIENCE		
Category	**Job**	**Area of Concentration (AOC) Military Occupational Specialty (MOS)**
Operator		
	Unmanned Aircraft Operator	15W 10-40
Subject Matter Expert (SME)		
	UAS NCO	15W 20-40
Supply		
	Unit Supply Specialist	92Y

Repairer		
	Unmanned Aircraft Systems Repairer	15E 10-40
Trainer		
	See Operator	15W

Additional Information/Requirements: The 2 Battalion, 13th Aviation Regiment, 1st Aviation Brigade (2-13 AR, 1 AB) located at Fort Huachuca, AZ, will provide Military Occupational Specialties (MOS) training for the Shadow RQ-7Bv2 TUAS operators and maintainers. All Unmanned Aircraft Systems operators must meet the following qualifications:

- **15W** - Unmanned Aerial Vehicle Operator (15W10 through 15W40). Must be in the grade of SPC (non-promotable) or below, unless they have held an Career Management Field (CMF) 15 MOS for a minimum of 12 months at skill level 1 or 2, 18 months at skill level 3, or 24 months at skill level 4.

- A minimum qualifying score of 105 in aptitude area Surveillance and Communications (SC) on Armed Services Vocational Aptitude Battery (ASVAB) tests.

- A security eligibility of SECRET (An interim eligibility SECRET meets this requirement).

- A high school graduate or equivalent.

- Must be a U.S. citizen.

- Formal training will be accomplished by completion of MOS 15W UAS Operator course conducted under the auspices of 2-13 AR, Ft Huachuca, AZ.

- **15E** - The Unmanned Aircraft Systems repairer must be in the grade of SPC (non-promotable) or below unless they have held an Aviation maintenance/component repairer CMF 15 MOS or Additional Skill Identifier U3 or U5 for a minimum of 12 months at skill level 1 or 2, or 18 months at skill level 3. Waivers and/or exceptions must be approved by Cdr, United States Army Aviation Center of Excellence. Unmanned Aircraft Systems maintainers must meet the following qualifications:

- Qualifying scores include a minimum score of 95 in aptitude area EL and 105 in aptitude area MM in Armed Services Vocational Aptitude Battery (ASVAB) tests administered prior to 2 January 2002, a minimum score of 93 in aptitude area EL and 102 in aptitude area MM on ASVAB tests administered on and after 2 January 2002 and prior to 1 July 2004, a minimum score of 93 in aptitude area EL and 104 in aptitude area MM on ASVAB tests administered on and after 1 July 2004.

- A security eligibility of SECRET is required for the initial award and to maintain the MOS.

- A high school graduate or equivalent.

- A U.S. citizen.

- Formal training (completion of MOS 15E under the auspices of the Army Aviation Logistics School) is mandatory. Waiver for formal training must be submitted to Cdr, United States Army Center of Excellence, for approval. (Army Regulation 95-23 mandates formal training at this time, no OJT or civilian acquired skill is authorized.)

- **150U** - Tactical Unmanned Aerial Vehicle Operations Technician (WO1 through CW5) . The Warrant Officer MOS is 150U, Tactical Unmanned Aerial Vehicle

Operations Technician, and will receive familiarization training on the system during the 150U functional course. MOS 150U is an accession MOS. The enlisted feeder MOS is 15W. The MOS is open to CMF 15 and other MOS with documented UAS experience. Must be selected by the Warrant Officer Panel. Prerequisites include:

- Be a SGT (E5) or above.
- Be an Advanced Leaders Course (ALC) graduate.
- Must be a High School Graduate (or GED equivalent).
- US Citizen with an GT Score minimum of 110 and have less than 12 years Active Federal Service.
- Hold MOS 15W, CMF 15 or any other MOS with documented UAS/TUAS experience. Have at least one year of experience as a section chief or have supervisory experience as defined in DA Pam 611-21. Supervisory experience must be documented in NCOERs.
- Have a Top Secret (TS) Clearance. Applicants for MOS 150U who do not possess a TS Clearance must submit a request for a TS Clearance through

their local security office prior to submitting an application. A verification memorandum from the security office stating the request has been submitted and the date it was submitted must be part of the packet.

Additionally, the Army will familiarize Officers and Noncommissioned Officers (NCO) with the capabilities and limitations of the Shadow RQ-7Bv2 TUAS in their respective PME courses. Both 15W and 15E NCO’s will receive hands-on training while attending the Advanced Leaders Course (ALC) and will receive systems familiarization in the Senior Leaders Course (SLC). Supervising Commanders and staffs will receive Shadow RQ-7Bv2 TUAS capabilities overview training. The Soldiers listed above and their units will also train during Live Force-on-Force (FOF) and Force-on-Target (FOT) exercises at institutions, home station, local training areas, maneuver Combat Training Centers (CTC), and deployed training sites.

3.0 Assumptions

- The Project Manager-Unmanned Aircraft Systems (PM-UAS), in conjunction with the Capabilities Developer (CAPDEV) and Training Developer (TNGDEV), will ensure that the system's Life Cycle Support will include training in the same manner as the system Model. The Aviation proponent TNGDEV has the overall approval authority for all training programs and products. This will include, but not limited to, training software and courseware that will be designed and developed in a reusable and maintainable format, i.e., Defense Information Infrastructure Common Operating Environment, and Shareable Content Object Reference Model (SCORM) compliant.

- The Aviation proponent approved critical individual and collective task lists will be used to develop all institutional training and/or non-institutional exportable training materials.

- Based on current/available information, 15W and 15E institutional training courses will mirror current lengths. However, this strategy may require re-evaluation due to the planned capability for autonomous takeoff and landing operations and as a result of the MANPRINT study. Throughput and associated programmatics will increase.

- All task development performed by the MATDEV and/or the contractor/manufacturer/training proponent will be performed using the consolidated Training Development Capability (TDC) database or follow-on system database, i.e., Army Training Information Architecture-Migrated (ATIA-M). This will facilitate the production of training support products for delivery with the Training Support System (TSS) and the ability to rapidly update tasks and their instructional products using digital information systems.

- Accepted Department of Defense (DoD) standards such as Architecture Framework (DoDAF), Army Distributed Learning/SCORM, ATIA-M, and Common

Training Instrumentation Architecture (CTIA) will be implemented in the design and development of embedded and distributed learning products and instrumentation.

- Sufficient numbers of Classroom 21, computer based training (CBT) devices, Institutional Mission Simulator (IMS), Universal Mission Simulator (UMS) or their successor(s), and RQ-7Bv2 Shadow TUAS maintenance trainers must be available to accommodate projected student throughput at the 2-13 AR and United States Army Aviation Center of Excellence (USAACE) NCOA to support RQ-7Bv2 Shadow TUAS training.

- The Project Manager-Unmanned Aircraft Systems (PM-UAS) will develop, provide and update as necessary RQ-7Bv2 Shadow TUAS specific multi-media interactive electronic technical manuals (IETMs), Technical Manuals (TM) that reflect changes to system hardware and software. The PM-UAS will coordinate with other PMs for required changes to IETM and TM products relevant to Levels of Interoperability training. The PM-UAS will develop and provide a multi-media system Training Support Package (TSP) which incorporates Army Learning Concept 2015 (ALC 2015) principles detailed in TRADOC PAM 525-8-2 w/C1 06 June 2011 that shall be used to support institutional training, new equipment training (NET) and unit sustainment training.

- Program Executive Office Simulation Training and Instrumentation (PEO-STRI) will support the maintenance of all Training Aides, Devices, Simulators, and Simulation (TADSS) (i.e., IMS, UMS [if applicable], maintenance trainers [if applicable]), Computer-Based Training (CBT) hardware, Embedded devices and instrumentation, etc...).

- The PM-UAS will be responsible for coordinating with t he receiving unit(s) and gaining installation(s) fielded with the RQ-7Bv2 Shadow TUAS for determining and obtaining the necessary land and airspace associated with the deployment and sustainment of the system.

- The PM-UAS will coordinate with the assigned Combat Aviation Brigade and Brigade Combat Team during unit fielding to ensure that aircraft and personnel are available to participate in Levels of Interoperability (LOI) training.

4.0 Training Constraints

Constraint Type	Probable Impact	Mitigating Efforts
Budgetary		
Budgetary Restriction	Could affect system availability and training.	Proper funding for Operational Tempo (OPTEMPO).
Equipment		
Equipment density	Lack of a complete RQ-7Bv2 training sub-system.	Contract for more TADSS.
Training Equipment		
Training equipment availability	Inadequate sustainment training.	Develop and utilize maintenance TADSS, such as part task trainers and IMI, CBT, embedded trainers (MUSE), IMS, UMS, unit equipment, and ensure TADSS are developed to allow for fault insertion,

		are available and are updated concurrently with system equipment hardware/software drops.
Personnel		
Number of personnel for training	Excessive numbers due to personnel turnover.	Train personnel in multiple shifts.
Facilities		
Training facilities requirements	Space shortfall.	Use temporary facilities to meet academic/classroom/maintenance training space requirements.
Human Factors Engineering		
Human-Machine Interface	Eye strain, immobility at stations, sustained db levels.	Mitigate through effective use of Fighter Management plan.
System Safety		

Safety hazards/restrictions	Soldier injuries and/or damage to Army property.	Conduct risk management IAW FM 5-19, Composite Risk Management.
Doctrine		
New capability with undeveloped TTP	Inadequate/inefficient combat and training application.	Employ ATP at unit and incorporate Lessons Learned in unit SOP and simulations.
Environmental		
Environmental hazards	Pollution from petroleum, oil, and lubricants (POL) spills and/or seepage.	Use drip pans in hangars and motor parks. Use secondary containment to prevent environmental contamination.
Support Services		
Services and contracts	Shortfalls in personnel.	Use military personnel, modified shift scheduling to meet training requirements.

Command Guidance		
Modularity, Common Operating Environment (COE)	Operators train to operate systems in COE conditions.	Simulation can be leveraged for pre-deployment training to replicate COE conditions.
Soldier Survivability		
Survivability issues	Entrapment in shelter during equipment fire and/or enemy fire.	Employ use of fire ax, larger door opening for shelter egress.
Other		
Host nation concerns related to frequency management and limited operating hours	May have an adverse impact on sustainment training.	Employ embedded training capabilities and/or simulator use to maintain a relevent, ready force.
Public Law		

Compliance issues	Flights and noise over populated areas, intelligence collection on US citizens.	Restrict flights to non-populated routes, adhere to Intel Oversight rules.

5.0 System Training Concept

The Army Reserve and National Guard will be trained in the same manner as the Active Army at the 2-13 AVR starting at FUE1.

The PM-UAS funds all training and training development associated with the fielding of the RQ-7Bv2 Shadow UAS. The US Army Aviation Center of Excellence (USAACE) is the proponent for the RQ-7Bv2 Shadow TUAS training. Training courses for UAS operators and maintainers are taught at the 2-13 AVR and USAACE Non-commissioned Officer Academy (NCOA).

Training for the RQ-7Bv2 Shadow TUAS will be developed in accordance with the latest publication of TRADOC Regulation (TR) 350-70 (including the ADDIE process) for all three training domains, within the framework of the Department of Defense Instruction (DODI 5000.02). The PM-UAS is responsible for the development of all training products and the conduct of NET.

The PM, MATDEV with the TNGDEV collaborate to develop this STRAP, TSP, WTSP, Lesson Plans, TADDS and IMI IAW TR 350-70 (including the ADDIE process) for all three training domains. The ADDIE outputs will be entered into the Training Requirements Analysis System (TRAS) for use in the PPBES for POM submission. The Training Support Package (TSP), its lessons; Interactive Multimedia Instruction (IMI); and the Training Aids, Devices, Simulator/Simulations (TADSS) will be developed using the methods presented in TP 525-8-2 w/C1 and the Adaptive Learning Model website. All the training products will be designed to be safe, mission focused, and based on Unified Land Operations doctrine, ADP and ADPR 3.0.

All of the digital training materials will be entered into and managed through the Training Development Capability (TDC). This information drives embedded training and IMI product development for Distributed Learning. The Sharable Content Object resource Model (SCORM) conformance will be required. The IMI products must be uploaded into ALMS. The individual and collective tasks updates will be used to update the Digital Training Management System (DTMS) and the Combined Arms Training Strategies (CATS). The TSP will be modified to become Warfighter Training Support Package (WTSP) with the addition of CATS. The final TSP and WTSP will be uploaded into the CAR. These programs can be accessed via the Army Training Network (ATN).
Based on PM-UAS provided materials, TRADOC Centers of Excellence will develop Soldier and Leader Professional Military Education (PME) programs to support the RQ-7Bv2 Shadow TUAS. After NET to all fielded RQ-7Bv2 Shadow TUAS units, the Army will be ready to assume full responsibility for conducting system

training in all training domains. The 3 domains are: institutional training domain (institutional); operational training domain (unit); and self-development training domain (professional development).

(a) Institutional Military Occupational Specialty (MOS) qualification. Training includes two MOS: Operator (15W) and Maintenance (15E). Operator and maintenance training will consist of classroom instruction covering characteristics, operations, operator maintenance, employment of the RQ-7Bv2 Shadow TUAS, and hands-on training in different environments.

1. Operator Training. RQ-7Bv2 TUAS operator (15W - Unmanned Aerial Vehicle Operator) training will be integrated into current 15W MOS training. All Soldiers entering into 15W MOS training will enroll in the Unmanned Aircraft System Operator Course (UASOC). UASOC is comprised of a nine-week, two-day non-system specific training phase followed by training phases/blocks on the Ground Control Station (GCS) and associated equipment, and Shadow RQ-7Bv2 TUAS operational specifics, capabilities and limitations. Upon graduation from UASOC, the Soldier will be awarded MOS 15W. Operators will be trained and qualified as RQ-7Bv2 TUAS operators. Training will be conducted at the 2-13 AVR, FT Huachuca, AZ.

2. Maintenance Training. RQ-7Bv2 TUAS maintainer (15E - Unmanned Aerial Vehicle Maintainer) training will be integrated into the current 15E MOS course. All maintainers will be trained and qualified as Universal UAS maintainers, qualified in all Army UAS to include the RQ-7Bv2 TUAS, no Additional Skill Identifier (ASI) will be required. Training will be conducted at the 2-13 AVR, FT Huachuca, AZ.

An overview of the RQ-7Bv2 TUAS will be conducted at each Basic Officer Leadership Course III (BOLC III), Captains Career Course (CCC), Aviation Warrant Officer Basic Course (AVWOBC), Warrant Officer Career Course, Senior Staff College, and Pre-Command Course. Employment and leader training will cover characteristics and capabilities of the RQ-7Bv2 TUAS, planning and employment considerations, maintenance and sustainment, and an overview of tactics, techniques, and procedures (TTP).

(b) New Equipment Training (NET)

1. NET focuses on three functions - operations and maintenance, employment of the RQ-7Bv2 TUAS, and conducting unit sustainment training. The NET Team will be composed of contractors and will use a train the trainer approach. For the 2-13 AVR, Instructor and Key Personnel Training (IKPT) will be completed prior to IOT&E of the first unit equipped. These IKPT Soldiers will become the nucleus for the 2-13 AVR cadre.

2. When units are fielded the RQ-7Bv2 TUAS, they will receive all applicable TADSS and the Training Support Package (TSP). PM-UAS, in conjunction with DOTD, will develop a TSP to support NET. It will be based on the TTSP, modified by lessons learned during Operational Testing (OT). The TSP will meet content requirements established in TRADOC Regulation 350-70. The NET TSP will be used to train Soldiers on the newly fielded systems, and operators will utilize simulation on the UMS. System training aides, mock-ups and part task trainers required for training will be available for initial training. All training materials developed will be provided in hard copy and electronic format (TDC database, CD-ROM, HTML/Web-Based) formats. PM-UAS will ensure that a Training Support Package (TSP) is provided to the unit at the conclusion of NET.

(c) Unit sustainment training.

1. Operational unit training will be conducted to sustain individual and collective proficiency in RQ-7Bv2 TUAS tasks and to experientially enhance new RQ-7Bv2 TUAS operators. RQ-7Bv2 TUAS operators will serve as Instructor Operators (IO) and unit trainers and advisors to Commanders on employment, sustainment, and training of the RQ-7Bv2 TUAS. They will receive system specific training during NET. Unit training will be based on the TSP, utilizing the UMS fielded to unique sites during Unit Set Fielding (USF), unit METL and ATM tasks.

Those selected as unit RQ-7Bv2 TUAS instructors will receive additional training on the methodology of instruction, planning and execution of individual and collective task sustainment training and the operation of

RQ-7Bv2 TUAS Training Aids, Devices, Simulators and Simulations (TADSS).

5.1 New Equipment Training Concept (NET)

The RQ-7Bv2 TUAS will be fielded to units under the Unit Set Fielding (USF) concept at home station, or a centralized facility-not all units can be trained at their home station. Units will be fielded the RQ-7Bv2 TUAS, all applicable TADSS, and Training Support Package (TSP) during USF. NET training will be provided to the unit within 90 days of receipt of the RQ-7Bv2 TUAS. NET focuses on three functions - operations and maintenance, employment of the RQ-7Bv2 TUAS, and methods/materials for conducting unit sustainment training. NET will be consolidated at Brigade Combat Team level (or higher where the fielding plan and unit schedules permit). The NET Team will be composed of contractors and will use a train the trainer approach. Soldiers will be trained on the newly fielded systems during NET. NET will consist of leveraging UMS availability and operational flight training. The Materiel Developer will ensure a NET Support Package is developed in coordination with training developer to support all aspects of RQ-7Bv2 TUAS training by following the process proscribed in Paragraph 5.0.

In addition to following the process outlined in Paragraph 5.0, the MATDEV will provide the materials and instructors to conduct NET. The NET will be provided to government Instructor and Key Personnel from 2-13 AVR and to unit trainers (if required) at the OEM, 2-13 AVR, and/or the appropriate designated site for mission/skill level training. Instructor and Key Personnel Training (IKPT) is the technical training provided by NET personnel or System-contractor personnel to support the initial transfer of knowledge on the operation and maintenance of the new RQ-7Bv2 TUAS as a means of establishing a training capability within proponent schools. Production capacity and fielding issues may necessitate a relook at the NET implementation strategy. Regardless, the TSP will be used to "train the institutional trainer" and will be the foundation for institutional and unit sustainment training.

The NET Support Package will include technical manuals (ETM/IETM), task list, Program of Instruction (POI), lesson plans, student guides and a web-resident/web-downloadable on the operation and maintenance of the RQ-7Bv2 TUAS. NET will continue until all applicable Army units are trained and fielded. IKPT will take place as close as possible to the date that a unit or school is scheduled to receive new or improved equipment. As a goal, IKPT should be conducted early enough that the training base is established and producing sufficient graduates (both initial entry and first line supervisors) in time to support fielding. However, IKPT must be conducted not later than 90 days after equipment is issued to the training base. The IKPT courses update skills of personnel already qualified in the appropriate

MOS. When IKPT/NET is completed, the newly trained government, civil service and/or contractor instructors will provide all further training using the Material Developer updated Multimedia TSP. Subsequent NET resulting from procedural or equipment changes will be added to the existing RQ-7Bv2 TUAS courses and will be provided at the institution or through Distance Learning media. Job Aids (JAs) will be submitted to ATSC Graphic Training Aids (GTA) program for digital RDL load and life cycle maintenance. The PM will be responsible for providing any needed operator/crew/ maintainer training and operator/crew/maintainer training support via a New Equipment Training Team (NETT).

When units are fielded the RQ-7Bv2 TUAS, they should receive all applicable Training Aids, Devices, Simulators, and Simulations (TADSS) and the PM-UAS will ensure that a Training Support Package (TSP) is provided at the conclusion of NET.

5.2 Displaced Equipment Training (DET)

N/A. The purpose of DET is to provide training on how to operate, maintain, and employ displaced or cascaded equipment to a receiving RQ-7Bv2 TUAS unit and assigned personnel.

The current plan is to replace the Shadow RQ-7B presently in the BCT with the Shadow RQ-7Bv2 TUAS. RQ-7B systems will not be re-issued to other units.

5.3 Doctrine and Tactics Training (DTT)

The Aviation proponent is responsible for developing the Doctrine and Tactics Training (DTT) and presenting it to personnel at the fielded units. The DTT explains the capabilities of the Shadow system and how the Shadow system will improve BDE effectiveness. Unit training will build upon the initial training to integrate the system operations with the procedures and objectives of current Army doctrine. The training developer will provide all training material in the approved Training and Doctrine Command (TRADOC) and DoD formats. Due to the amount of new equipment upgrades to the RQ-7Bv2 TUAS, USAACE will assess what training and training support needs to accompany the equipment fielding. USAACE (DOTD) in combination with external assistance/resources will be responsible for providing an exportable Training Support Package, which supports DTT training. USAACE, (DOTD) will identify the requirement for DTT upon receipt of the draft New Equipment Training Plan (NETP). This will be accomplished by conducting reviews of the applicable operational concepts generated by the requirements determination process and the organizational and operational plan prepared by the Capabilities Developer (CBDEV) for the RQ-7Bv2 TUAS.

5.4 Training Test Support Package (TTSP)

A TTSP is assembled by the Aviation proponent training developer for each affected operator and maintainer Military Occupational Specialty. The TTSP contains information used by the trainer to train test players and for the tester's use in evaluating training on a new materiel system. It focuses on the performance of specific individual and collective tasks during operational testing of a system. The TTSP should be updated prior to each Early User Test and Evaluation (EUT&E), Limited User Test (LUT), Initial Operational Test and Evaluation (IOT&E), and Follow-on Test and Evaluation FOT&E during a system's development, or as required by the Test Evaluation Master Plan (TEMP) or Operational Test Plan (OTP). The package will be coordinated with combat and materiel development personnel. All training development performed by the material developer and/or the contractor/manufacturer training developer will be performed using the Army Learning Policy and Systems process and will meet content requirements established in TR 350-70, 6 Dec 2011. The process described in Paragraph 5.0 shall be used for developing Army learning products. These products provide the knowledge required for Tactics, Techniques, and Procedures (TTP) training for operators through senior commanders. The initial TTSP consists of the approved System Training Plan (STRAP), the Test Training Certification Plan (TTCP), training data requirements (instructional material to be revised before beginning training), and test resource support (ammunition, manpower, etc.). The TTCP outlines and describes the method and procedures for evaluating and certifying individual and collective pretest training; the who, where, and how training is to be certified. The initial TTSP is provided to the tester nine months (270 days) before test, or as specified in Outline Test Plan (OTP). The Final TTSP is prepared following IKPT and receipt of the NET TSP. It should be available 60 days prior to the commencement of test player training and the Operational Test Readiness Review (OTRR) 2. (As described in DA PAM 73-1, par 6-61 page 112). The final TTSP consists of the:

- Training schedule.
- Respective lesson plans and/or TSP for each affected MOS/ASI/AOC (officer, warrant officer, and enlisted).
- List of training devices, embedded training components and simulators.
- Target audience description.
- Soldier training publications (STP) or changes.
- Crew Drills.
- Lesson plans.
- Critical Military Occupational Skill (MOS) task lists.
- Ammunition, targets, and Ranges for training (When available).
- Gunnery tables (When available).

- FMs or changes to FMs.
- Combined Arms Training Strategies (CATS) for RQ-7Bv2 Shadow UAS as well as Army training and evaluation program draft mission training plan (MTP) or changes to the MTP.

The TTSP, developed IAW DA Pam 73-1, will include at a minimum: Operational lesson plans, critical task list, software users guide, and all applicable forms and regulations to support the Commander's Standardization and Evaluation program. These training products support a baseline system proficiency or competency level with the actual system for the operators.

6.0 Institutional Training Domain

Institutional UAS MOS 15W and 15E training courses for both operators and maintainers are currently taught at the 2-13 AVR, Ft. Huachuca, AZ. Army Training and Leader Development, through USAACE, 2-13 AVR, and USAALS centers and schools, will continue to be the foundation of Army doctrine, initial military training, and Professional Military Education (PME). During initial military training, USAACE, 2-13 AVR, and United States Army Aviation Logistics Schools (USAALS) centers and schools will continue to train and condition recruits and new officers, instilling the Army values and the Warrior Ethos, and preparing them for operational assignments. During PME, USAACE, 2-13 AVR, and USAALS centers and schools will continue to develop leaders through training and education programs. In times of crisis and a need for Army expansion, USAACE, 2-13 AVR, and USAALS centers and schools remain vital in supporting Army mobilization. Future military training and education will become even more available, in greater variety throughout the force using technology breakthroughs in communications and behavioral science. This improved access will help prepare Soldiers and leaders by providing the required doctrine, Skills, Knowledge, and Attributes (SKA).

6.1 Institutional Training Concept and Strategy

Institutional Military Occupational Specialty (MOS) qualification training includes two MOS: Operator (15W) and Maintenance (15E). Operator and maintenance training will consist of classroom instruction covering characteristics, operations, operator maintenance, employment of the RQ-7BV2 TUAS, and hands-on training in different environments.

- Operator Training. UAS operator (15W - Unmanned Aircraft Systems Operator) training will be integrated into the current 15W MOS course. All operators will be trained and qualified as UAS operators, qualified on the RQ-7Bv2 TUAS. Training will be conducted at the 2-13 AVR, FT Huachuca, AZ.

- Maintenance Training. RQ-7Bv2 TUAS maintainer (15E - Unmanned Aircraft Systems Repairer) training will be integrated into the current 15E MOS course. All maintainers will be trained and qualified as Universal UAS maintainers, qualified in all Army UAS to include the RQ-7Bv2 TUAS, no Additional Skill Identifier (ASI) will be required. Training will be conducted at the 2-13 AVR, FT Huachuca, AZ.

- Warrant Officers designated as 150U, Tactical Unmanned Aerial Vehicle Operations Technicians, will attend the Aviation Warrant Officer Basic Course at USAACE, Fort Rucker followed by the 150U track course at the 2-13 AVR, Fort Huachuca.

- An overview of the UAS system will be conducted at the Aviation Officer Basic Course (AVNOBC), Aviation Captains Career Course (AVNCCC), and the Aviation Warrant Officer Basic Course (AVNWOBC). This overview will also be presented in all leadership training courses Army-wide. This may be a stand-alone overview or combined with an Army UAS overview.

Upon graduation from the UAS operator training course, the Soldier will be awarded MOS 15W. Munitions operations and Level of Interoperability (LOI) training will be included in the 15W course for UAS operators.

Upon graduation from the UAS maintainer training course, the Soldier will

be awarded MOS 15E. Sensor and payload training will be incorporated into the appropriate 15-series MOS Program of Instruction (POI).

The NET Multimedia TSP will be updated by the MATDEV upon completion of the "Train the Trainer" IKPT. The updated TSP will be used for institutional training of MOS personnel. The TSP will also be modified and integrated into the Officer/Warrant Officer Professional Development courses and the Advanced Leadership Course (ALC) and the Senior Leaders Course (SLC).

Training requirements pertaining to RQ-7Bv2 TUAS laser training, laser safety, Instrument Flight Rules (IFR)/National Airspace System (NAS) and any other subject or TADSS which will safely operate, maintain and deploy the RQ-7Bv2 TUAS will be developed and included in the institutional POI.

6.1.1 Product Lines

The RQ-7Bv2 TUAS product lines include the integrated, interoperable capabilities that enable the conduct of training and education. They consist of Training Information Infrastructure (TII), TADSS; training products; training facilities and land; and training services. The product lines provide the capabilities that trainers and Soldiers need to conduct training in the institution, operational, and self-development domains. RQ-7Bv2 TUAS product lines will require upgrades to training aids, devices, simulators, simulation, software, hardware, databases, and Training Support Packages (TSP) and be delivered by the material developer to RQ-7Bv2 TUAS institutional base and MACOM sites as needed.

Interactive Media Instruction (IMI) (Level I - IV) Products. The Project Manager in conjunction with the USAACE, CRD, and DOTD will develop IMI modules which will support individual training in the institutional, operational, and self-development domains. The three training modules, operation and maintenance, employment, and conduct unit training, will be included in the TSP fielded in NET. The modules will provide standalone computer based training as well as web-based training over the Internet. IMI must be WEB based enabled and be usable on standard Windows Operating System (or current hardware language) compatible computers with the capability of enabling instructors to rapidly develop, network, update as necessary, and distribute TSPs, Lesson Plans, and student guides. This capability should support Computer Assisted Instruction (CAI), Computer Based Training (CBT), Interactive Electronic Technical Manual (IETM), individual self-paced instruction as well as formal classroom presentations and foster interaction among students and instructors.

6.1.1.1 Training Information Infrastructure

The RQ-7Bv2 TUAS and its training subsystem will interface with the Integrated Training Environment (ITE). The objective will be to link system and non-system virtual simulations into a fully integrated training capability in the Army's Training Transformation plan to embed multi-mode training capability with Battlefield Surveillance Brigades (BfSB), Fires, Stryker Forces, and Joint-Interagency-Intergovernmental-Multinational (JIM) virtual simulators. Objective includes standard virtual visual models, OneSAF (One Semi-Automated Force) integration, Standard Terrain Database (TDB) generation process, master TDB open format, dynamic terrain, atmospheric effects, Chemical, Biological, Radiological, Nuclear And High-Yield Explosive (CBRNE) effects, and integrated after action review (AAR). Once developed, these capabilities will reduce redundancy, increase realism and facilitate the ITE. The Multiple Unified Simulation Environment (MUSE) will provide an embedded simulation capability to the RQ-7Bv2 TUAS. MUSE will also provide input to the Target Signature Array (TSA) capability for use in the Intelligence and Electronic Warfare Tactical Proficiency Trainer (IEWTPT). IEWTPT will also provide sustainment and proficiency training for Joint Command and Battle Staff.

6.1.1.1.1 Hardware, Software, and Communications Systems

The interconnected local and global network infrastructure is used to facilitate the dissemination and delivery of RQ-7Bv2 TUAS training support information to the Central Army Registry (CAR), Distributed Learning (dL) repositories, ATN repository, and Video Tele-Training (VTT).

6.1.1.1.2 Storage, Retrieval, and Delivery

Capabilities that allow for the collection, organization of, and provide access to digital TSS products and information on the RQ-7Bv2 TUAS will include RDL, DL repositories, CALL repository, and Video Tele-Training (VTT). The system must be equipped with a digital recording, archive and retrieval system that will capture a minimum of 30 days of data for both video and meta data.

6.1.1.1.3 Management Capabilities

Information and training management capabilities will mirror those of current Unmanned Aircraft Systems. The information systems that allow for the management of digital TSS products and information on the RQ-7Bv2 TUAS may include Standard Army Training System (SATS)/Unit Training Management Configuration (UTMC), Digital Training Management System (DTMS),Learning Management System (LMS),Distributed Learning System, Individual Training Resource Management (ITRM) system, Automated Instructional Management System - Personal Computer (AIMS-PC), Materiel Army-wide Tracking System (MATS), Reception Battalion Automated Support System (RECBASS).

6.1.1.1.4 Other Enabling Capabilities

Interoperability and data exchange as required by the Training Support System (TSS) will exist with the Army Training Integrated Architecture (ATIA), the Common Training Instrumentation Architecture (CTIA) to support the primary RQ-7Bv2 components of the TSS Training Information Infrastructure. Additionally, the capability for common communications and data exchange operating environment integral to the Brigade Combat Modernization (BCM) would be incorporated into the system.

6.1.1.2 Training Products

A TTSP is assembled by the proponent training developer for each affected operator and maintainer Military Occupational Specialty. The TTSP contains information used by the trainer to train test players and for the tester's use in evaluating training on a new materiel system. It focuses on the performance of specific individual and collective tasks during operational testing of a system. The TTSP should be updated prior to each EUT&E, LUT, IOT&E, and FOT&E during a system's development, or as required by the TEMP or OTP. The initial TTSP only contains the STRAP, Test Training Certification Plan, and training data requirements. It provides the test agency with the training concept for the system, the training issues upon which the trainer requires data, and the method for training test players. The initial submission is due to the test agency from Test (T) start minus (-) T-9 months, or as specified in the OTP. The Final Training TSP is prepared following IKPT and receipt of the NET TSP. It should be available 60 days prior to the commencement of test player training and the OTRR 2. (As described in TR 350-70).

Multimedia product: Interactive Media Instruction (IMI) (Level I - IV) Products. The Material Developer, in conjunction with the USAACE DOTD, will develop IMI modules which will support individual training in the institutional, operational, and self-development domains. The three training modules, operation and maintenance, employment, and conduct unit training, will be included in the TSP fielded in NET. The modules will provide standalone computer based training as well as web-based training over the Internet. IMI must be WEB based enabled and be usable on standard Windows Operating System (Or current hardware language) compatible computers with the capability of enabling instructors to rapidly develop, network, update as necessary, and distribute POIs, Lesson Plans, and student guides. This capability should support Computer Assisted Instruction (CAI), Computer Based Training (CBT), Interactive Electronic Technical Manual (IETM), individual self-paced instruction as well as formal classroom presentations and foster interaction among students and instructors.

Computer Based Training (CBT) systems, at the 2-13 AVR, are utilized to train Soldiers on the RQ-7Bv2 TUAS and provide periodic progress checks on material covered with a final examination. The DTT, which is part of the NET TSP, explains the capabilities of the RQ-7Bv2 TUAS, how the RQ-7Bv2 TUAS will improve unit effectiveness, and is left behind for the gaining unit. Integrated Electronic TM (IETM) are also used to enhance training.

Reach-back Training. All institutional courses will be available as either

IMI, Computer Based Training (CBT) in a standalone digital media format or as web-based training hosted on the Army Learning Management System. Courseware will comply with the Shareable Content Object Reference Model (SCORM). The Materiel Developer will ensure a NET Support Package is developed in coordination with the training developer to support all aspects of RQ-7Bv2 TUAS training. The Materiel Developer (MD) will provide a complete (SCORM 2004 compliant) Multimedia Training Support Package (TSP) to support the RQ-7Bv2 TUAS.

TADSS : The RQ-7Bv2 TUAS TADSS shall facilitate training of Army and Joint Manned, Unmanned (MUM) Teaming, both ground and aircraft, in medium threat environments including collaborative and/or experimental simulations. The devices will be in accordance with the USAACE UAS simulation strategy and UAS Training Strategy. New training devices procured for Army UAS systems should fit the MUSE architecture and include MUSE software components if possible and applicable (e.g., the ERMP IMS/PIMS/ET design includes the use of actual, tactical flight code integrated with the core MUSE software).

The PM-UAS must develop operator and maintenance trainers and TADSS to support RQ-7Bv2 TUAS training at 2-13 AVR and the Non-commissioned Officer Academy (NCOA) at both USAACE and 128th AVBDE. This must include RQ-7Bv2 TUAS maintenance trainers and other task trainers that enable the 2-13 AVR and the NCOA to teach all critical training tasks. It must be delivered to the 2-13 AVR and the NCOA prior to IKPT. These task trainers will also be used to train operators during emplacement and displacement of the system.

Integrated Training Environment (ITE): RQ-7Bv2 TUAS will interface with the ITE. The RQ-7Bv2 UA will be interoperable with One Tactical Engagement Simulation System (OneTESS), Homestation Instrumentation Training System (HITS), maneuver Combat Training Centers (CTC), and Common Training Instrumentation Architecture (CTIA). The system will be backwards compatible with Multiple Integrated Laser Engagement System (MILES) and forward capable with the Instrumentable Multiple Integrated Laser Engagement System (IMILES) in order to support current and future Force-on-Force (FOF) and Force-on-Target (FOT) training. Live Force-on-Force (FOF) training at home station, local training areas, maneuver CTC, and deployed training sites will be required to validate the ability of units to employ the RQ-7Bv2 TUAS within the force, and mission rehearsal needs.

Manuals: TC 3-04.61 is the aircrew training manual for RQ-7Bv2 TUAS. It encompasses individual and collective training and establishes operator

qualification, refresher, mission, and continuation training requirements. It also prescribes tasks, conditions, standards, and descriptions for each crewmember's responsibility for the successful completion of maneuvers.

System hardware/software: Two (2) complete RQ-7Bv2 TUAS must be provided for training at 2-13 AVR.

6.1.1.2.1 Courseware

Training products and procedures must be developed IAW the process outlined in Paragraph 5.0 of this STRAP. Training products and processes will be documented and delivered in the Training Development Capability (TDC) software suite or TRADOC's latest training development (TD) workload management database that supersedes the current TD automation system. Documentation in TDC to the maximum capability of TDC is a requirement of TR 350-70.

- The Material Developer (MATDEV) will develop a SCORM 2004 compliant multimedia TSP compatible with the Army Learning Management System (ALMS) and automation equipment installed in The Army Distance Learning Program (TADLP) classrooms, Classroom XXI, and DISA installed infrastructure.

- Training Aides, Devices, Simulators, and Simulations (TADSS), Interactive Courseware (ICW), Computer Based Training (CBT), and Computer Aided Instruction(CAI) will be used to the maximum extent possible. The system TADSS will be capable of Force-on-Force interplay at HITS, CTC, and deployed training sites by interfacing with TES, CTC-instrumented systems, Digital Range Training System (DRTS), Homestation Instrumentation Training System (HITS), and the Aviation Combined Arms Tactical Trainer (AVCATT).

- The PM-UAS, in conjunction with USAACE DOTD, will develop Level 1-4 IMI modules and Computer Based Training (CBT) which will support individual training in the institutional, operational, and self-development domains. The training modules will be included in the TSP fielded in NET. The modules will provide standalone computer based training as well as web-based training over the Internet.

System Hardware/Software and/or Components. Specifics are not currently available, however, all software developed for CAI, CBT, IETM, etc. must be useable on Windows compatible computers.

6.1.1.2.2 Courses

Course Name	*Course Number*
Initial Military Training	
Unmanned Aircraft Systems Operator Course	102-15W10
Unmanned Aircraft Systems Repairer	600-15E10
Professional Military Education (PME)	
Advanced Leaders Course - 15W	080-15W30-C45
Advanced Leaders Course - 15E	600-15E30-C45
Senior Leaders Course - 15W	080-15W40-C46
Senior Leaders Course - 15E	600-15E40-C46(P)
Functional And ASI	
Tactical Unmanned Aircraft SYS OPNS WO TECH	2G-150U
Unmanned Aircraft Systems Operator Course	102-ASI7D (15W)
Mobilization	

6.1.1.2.3 Training Publications

Publications	**Publication Date**
Field Manuals	
FM 1 The Army	14 June 2005
FM 1-0 Human Resources Support	21 February 2007
FM 1-02 Operational Terms and Graphics	21 September 2004
FM 1-100 Army Aviation Operations	21 February 1997
FM 2.0 Intelligence	17 May 2004
FM 3-04.15 Multi-Service Tactics, Techniques, and	03 August 2006

Procedures for the Tactical Employment of Unmanned Aircraft Systems	
FM 3-04.111 Aviation Brigades	07 December 2007
FM 3-04.120 Army Air Traffic Services Operations	16 February 2007
FM 3-04.155 Army Unmanned Aircraft Systems Operations	04 April 2006
FM 3-04.203 Fundamentals of Flight	07 May 2007
FM 3-04.240 Instrument Flight for Army Aviators	30 April 2007
FM 3-04.300 Airfield and Flight Operations Procedures	12 August 2008
FM 3-04.301 Aeromedical	29 August 2000

Training for Flight Personnel	
FM 3-04.303 Air Traffic Services Facility Operations, Training, Maintenance, and Standardization	03 December 2003
FM 3-04.500 Army Aviation Maintenance	23 August 2006
FM 3-04.513 Aircraft Recovery Operations	
FM 3-06.1 Aviation Urban Operations Multi-Service Tactics, Techniques, and Procedures for Aviation Urban Operations	09 July 2005
FM 3-06.11 Combined Arms Operations in Urban Terrain	28 February 2002
FM 3-09.31 Tactics,	01 October 2002

Techniques, and Procedures for Fire Support for the Combined Arms Commander	
FM 3-09.34 Kill Box Multi-Service Tactics, Techniques, and Procedures for Kill Box Employment	14 June 2005
FM 3-11 Multi-Service Tactics, Techniques, and Procedures for Nuclear, Biological, and Chemical Defence Operations	10 March 2003
FM 3-11.3 Multi-Service Tactics, Techniques, and Procedures for Chemical, Biological, Radiological, and Nuclear Contamination Avoidance	02 February 2006
FM 3-11.4 Multi-ServiceTactics,	02 June 2003

Techniques, and Procedures for Nuclear, Biological, and Chemical (NBC) Protection	
FM 3-11.5 Multi-Service Tactics, Techniques, and Procedures for Chemical, Biological, Radiological, and Nuclear Decontamination	04 Arpil 2006
FM 3-11.20 Technical Escort Battalion Operations	29 August 2007
FM 3-13 Information Operations: Doctrine, Tactics, Techniques, and Procedures	28 November 2003
FM 3-21.75 The Warrior Ethos and Soldier Combat Skills	28 January 2008
FM 3-52 Army	01 August 2002

Airspace Command and Control in a Combat Zone	
FM 3-97.6 Mountain Operations	28 November 2000
FM 3-100.21 Contractors on the Battlefield	03 January 2003
FM 5-19 Composite Risk Management	21 August 2006
FM 6-02.40 Visual Information Operations	10 March 2009
FM 6-20 Fire Support in the AirLand Battle	17 May 1988
FM 7-0 Training to Full Spectrum Operations	12 December 2008
FM 7-15 The Army Universal Task List	27 February 2009

FM 7-21.13 The Soldier's Guide	02 February 2004
FM 7-22.7 The Army Noncommissioned Officer Guide	23 December 2002
Technical Manuals	
TM 1-1500-204-23-1 Aviation Unit Maintenance (AVUM) and Aviation Intermediate Maintenance (AIM) Manual for General Aircraft Maintenance (General Maintenance and Practices) Volume 1	31 July 1992
TM 1-1500-204-23-2 AVUM and AIM Manual for General Aircraft Maintenance (Pneudralics Maintenance and Practices) Volume 2	31 July 1992
TM 1-1500-204-23-3	31 July 1992

AVUM and AIM Manual for General Aircraft Maintenance (Maintenance Practices for Fuel and Oil Systems) Volume 3	
TM 1-1500-204-23-4 AVUM and AIM for General Aircraft Maintenance (Electrical and Instrumen tMaintenance Procedures and Practices) Volume 4	31 July 1992
TM 1-1500-204-23-5 AVUM and AIM for General Aircraft Maintenance (Propeller, Rotor, and Powertrain Maintenance Practices) Volume 5	31 July 1992
TM 1-1500-204-23-6 AVUM and AIM for General Aircraft Maintenance (Hardware and Consumable Materials) Volume 6	31 July 1992
TM 1-1500-204-23-7 AVUM and AIM for General	31 July 1992

Aircraft Maintenance (Nondestructive Testing and Flaw Detection Procedures and Practices) Volume 7	
TM 1-1500-204-23-8 AVUM and AIM for General Aircraft Maintenance (Machine and Welding Shop Practices) Volume 8	31 July 1992
TM 1-1500-204-23-9 AVUM and AIM for General Aircraft Maintenance (Tools and Ground Support Equipment)	31 July 1992
TM 1-1500-204-23-10 AVUM and AIM for General Aircraft Maintenance (Sheet Metal Shop Practices) Volume 10	31 July 1992
TM 1-1500-328-23 Aeronautical Equipment Maintenance Management Policies and Procedures	30 July 1999

TM 55-1500-342-23 Army Aviation Maintenance Engineering Manual for Weight and Balance	30 July 1999
TM 1-1550-696-XX Series Manuals RQ-7Bv2 TUAS Specific Designation are TBD	Date: TBD
TM 9-XXXX-XXX-XX Series Manuals RQ-7Bv2 TUAS Specific Designation are TBD	Date: TBD
TM 1-1550-696-CL Operators Checklist RQ-7Bv2	Date TBD
Soldier Training Publications	
STP 1-15E13-SM-TG Soldiers Manual, Skill Levels 1/2/3 and Trainers	Date: TBD

Guide MOS 15E	
STP 1-15W13-SM-TG Soldiers Manual, Skill Levels 1/2/3 and Trainers Guide MOS 15W	Date: TBD
Special Texts	
TC 1-600 Unmanned Aircraft System Commanders Guide and Aircrew Training Manual	23 August 2007
TC 25-10 A Leaders Guide to Training	26 August 1996
TRADOC PAM 525-8-2 Army Learning Concept	30 June 2003

6.1.1.2.4 Training Support Package (TSP)

The PM-UAS provided NET TSP will be used by the Training Developer as a basis for all RQ-7Bv2 TUAS Institutional and Unit Sustainment training materials. This includes the use of all products and/or other training products developed by the PM-UAS. A TSP for individual training is a complete, exportable package integrating training products/materials necessary to train one or more critical individual tasks. A TSP for collective training is a package that can be used to train critical collective and supporting critical individual tasks (including leader and battle staff). TSP that fall under these categories can include-

- Collective/Warfighter TSP . A complete, stand alone, RQ-7Bv2 TUAS exportable training package will be provided integrating training products and materials needed to train the RQ-7BV2 TUAS critical collective tasks and supporting critical individual tasks (including leader and battle staff). This TSP will be a task based information package that will provide a structured situational training scenario for live, virtual, or constructive unit and/or institutional training.

- Common or Shared Individual Task TSP . If needed, a common or shared RQ-7BV2 TUAS TSP will be provided to train the common/shared tasks that will be accomplished by both operators and maintainers.

- Lane Training TSP . The unit will be responsible for the development of a Lane Training RQ-7BV2 TUAS TSP. The TSP must be developed so that during the execution phase of the lane training process the unit can train company-size and smaller units on one or more collective tasks (and prerequisite Soldier and leader individual tasks and battle drills) supporting a unit's mission essential task list. As part of Lane Training, exercises will take place which will consist of assembly areas, rehearsal, training lane execution, after-action review, and retraining activities which culminate the lane training process.

- TADSS TSP . The RQ-7BV2 TUAS TADSS TSP will be a complete package integrating all training products and materials needed to provide individual and/or collective training in the operational use or

maintenance of RQ-7BV2 TUAS TADSS. The TADSS TSP may be developed and provided as an exportable package for use in units to "train-the-trainer" as a package for use in units to train individuals or teams, or as a package exclusively used within an institution to train instructors and/or students on the utilization of RQ-7BV2 TUAS TADSS. The TADSS TSP product will be an approved, validated TSP containing all material required to implement RQ-7BV2 TUAS training at the unit and/or institution. The contents of the TADSS TSP will vary depending on the type and/or use of each RQ-7BV2 TUAS TADSS.

- Training/TATS Course TSP . A training/TATS course RQ-7BV2 TUAS TSP will be developed (if required) which will contain all guidance and materials needed to train any RQ-7BV2 TUAS critical tasks of a particular course to the Total Army.

- TSP for collective tasks trained in the unit. An RQ-7BV2 TUAS TSP consisting of doctrinal publications will be prepared and/or approved by the proponent school for unit training of critical collective task(s).

- TSP for individual tasks trained in the unit. An RQ-7BV2 TUAS TSP that will be prepared by the PM/proponent school for critical individual task(s) selected during the media selection process for training at the unit. It will include the necessary guidance/material needed to train the task.

- Institutional TSP. The RQ-7BV2 TUAS TSP for institutional training to support the RQ-7BV2 TUAS system is complete upon approval and acceptance by the proponent school of the contractor delivered institutional TSP. Any issues in the institutional TSP for each MOS will be corrected, then they will be converted to the institutional Program of Instruction (POI) for use at the institutional base. Each proponent with PM support must maintain currency of the institutional training to meet all system modification/update requirements.

- Operational TSP. Will be developed and used during all test events that

take place during milestone "B" phase of the acquisition process in the form of NET TSP.

- Self-Development TSP. Current Self-Development TSP for the affected RQ-7BV2 TUAS MOS will be updated/revised as needed.

- Training Test Support Package. The RQ-7BV2 TUAS TTSP will include information provided the tester for use in evaluating training on the RQ-7BV2 TUAS. This package will include the program of instruction, Soldiers' manuals, trainers' guides, ARTEP mission training plan changes, and training devices. It also includes embedded training components, training ammunition (If required), targets, technical documentation, and training extension materials.

Gunnery Qualification TSP. Will be developed, incorporated in the TTSP and used during early provision of gunnery training tools which will enhance crew effectiveness and set the conditions for successful home station sustainment training (When available).

6.1.1.3 TADSS

The Universal Mission Simulator (UMS) will be utilized to hone flight, mission payload, and task management skills prior to actual RQ-7Bv2 UA flight. A RQ-7Bv2 TUAS maintenance trainer, in conjunction with a RQ-7Bv2 UA working model will be utilized to train 15E in a controlled environment without undue risk to the actual UA.

The material developer is responsible for developing a simulator, the Target Signature Array (TSA), for the RQ-7Bv2 TUAS . The MUSE provides a simulation capability to the Shadow TUAS UGCS ET & UMS and as such is the TSA capability for the Intelligence and Electronic Warfare Tactical Proficiency Trainer (IEWTPT). A desktop trainer, comprised of mostly software, would allow training on individual operator tasks on the RQ-7BV2 TUAS on a typical personal computer or laptop. The system would use the actual operator controller unit interfaced with the PC to provide simulated RQ-7BV2 TUAS operations in varied scenarios and missions. The capability to host simulations of RQ-7BV2 TUAS operations within the CCTT's Virtual Soldier Module and the Virtual Soldier Multifunction Workstation would allow not only individual operator training but also its integration into collective training within CCTT. All RQ-7BV2 TUAS simulations and TADSS will comply with the requirements established in the approved UAS Simulation Strategy. (Will be attached upon approval). The simulator will simulate Electro Optical (EO), Infrared (IR), Laser Designator (LD), Laser Range Finder (LRF), Laser Illuminator, Synthetic Aperture Radar (SAR) and Ground Moving Target Indicator (GMTI) plus any new payloads resulting from maturing technologies and/or evolving capabilities. The system will provide a mission rehearsal capability utilizing actual mission location Digital Terrain Elevation Data (DTED). It will correlate accurate SAR and GMTI imagery.

The RQ-7BV2 TUAS training devices will interface with the Live, Virtual, Constructive (LVC)Integrated Training Environment (ITE) by complying with LVC Intergrating Architecture (IA) standards and protocols. The RQ-7BV2 TUAS will be compatible and interoperable with Close Combat Tactical Trainer (CCTT); Aviation Combined Arms Tactical Trainer (AVCATT); Non-Rated Crew Member Manned Module (NCM3); Reconfigurable Cockpit Training Device (RCTD); Reconfigurable Vehicle Tactical Trainer (RVTT); Call for Fire Trainer (CFFT); Virtual Convoy Operations Trainer (VCOT); Virtual Battlespace 3 (VBS3); One-Tactical Engagement Simulation System (OneTESS); AV TESS (Aviation-Tactical Engagement Simulation System) home station, deployed, and maneuver Combat Training Center-Instrumentation Systems (CTC-IS); and Common Training Instrumentation Architecture (CTIA) and backwards compatible with Multiple Integrated Laser Engagement System (MILES). The MATDEV will develop

a Shareable Content Object Reference Model (SCORM) compliant multimedia TSP compatible with the Army Learning Management System (ALMS) and automation equipment installed in The Army Distance Learning Program (TADLP) Classrooms, classroom XXI, and Defense Information Systems Agency (DISA) installed infrastructure/reusable content for lifelong learning and for life cycle system support.

The Institutional Mission Simulator (IMS) and/or the Universal Mission Simulator (UMS), or its successor, and Computer Based Training (CBT) will be utilized to hone flight, mission payload, and task management skills prior to actual operation of the RQ-7BV2 TUAS. Such training will instill confidence in the Soldiers; will safeguard actual equipment during the training process; and protect all personnel performing runway and flight operations. The MUSE will provide a simulation capability to the RQ-7BV2 TUAS UGCS ET and UMS for sustainment and proficiency training for operators and crews. These task trainers will also be used to train operators during emplacement and displacement of the system.

- Operator Devices. Operator simulators must have the physical and functional capabilities necessary for individual/crew task training, the ability to conduct control station transfers of RQ-7BV2 TUAS between two (2) or more UMS, the ability to conduct laser and weapons training, and for collective combined arms training of all TRADOC approved critical tasks to the appropriate standard. The inside of the Universal Ground Control Station (UGCS), flight controls, weapons, sensors, threat detection system, communications, and navigation systems of these simulators must accurately replicate, physically and functionally, those of the actual UGCS and its systems to preclude negative habit transfer. Concurrency upgrades for the RQ-7BV2 TUAS simulators will be accomplished as necessary to meet RQ-7BV2 TUAS configuration changes and upgrades. The RQ-7BV2 TUAS must be able to interoperate with the Aviation Combined Arms Tactical Trainer (AVCATT), which is the virtual simulation vehicle that will allow Aviation to "Train to Fight" on the combined arms battlefield. The AVCATT consists of 6 reconfigurable manned modules for the pilot and copilot, Battle Master Controller, Semi Automated Forces, After Action Review workstations, and 4 role player work stations which can support any of the following: Fire Support, Ground Maneuver, battle command, close air support, logistics and engineer functional areas. This enables the commander to pre-plan, rehearse, execute, evaluate, and verify organizational capability and readiness prior to live field training exercises and/or Combat Training

Center (CTC) rotation. A combination of virtual and constructive simulation is integrated with the pilot manned modules allowing combat scenarios to be played out employing the entire staff (from pilots/copilots, S-1, S-2, S-3, -4, and S-6 Functions). Concurrency upgrades for AVCATT will be accomplished as necessary to meet RQ-7BV2 TUAS configurations and upgrades.

- Maintainer Devices. Maintenance training devices must simulate the physical and functional fidelity necessary to train all TRADOC approved critical tasks to applicable TRADOC standards.

- The Embedded Training (ET) must train two operators, Aircraft Operator and Payload Operator (AO/PO) simultaneously (with full control allowed in both positions), have the ability to conduct Manned Unmanned Teaming (MUM-T) and provide Levels of Interoperbility 1-4, have the ability to conduct control station transfers of RQ-7BV2 TUAS between two (2) or more UMS, have the ability to conduct laser and weapons training, and must simulate the RQ-7BV2 TUAS configurations with the functionality, fidelity (including motion cues) and visual system (including interoperable, geo-specific terrain databases); command, control, communications, computers, intelligence, surveillance, and reconnaissance (C4ISR); and training environment capabilities required to train to standard the individual/crew tasks with no negative habit transfer. Functionality and fidelity must include high fidelity flight models and flight control capabilities. For enhanced training, on board ET as an integral element of the RQ-7BV2 TUAS is required. Maintenance of this training should evolve towards embedded training applications in accordance with DA guidance for the Future Force.

- The Universal Mission Simulator (UMS) must train two operators, Aircraft Operator and Payload Operator (AO/PO) simultaneously (with full control allowed in both positions), have the ability to conduct Manned Unmanned Teaming (MUM-T) and provide Levels of Interoperbility 1-4, have the ability to conduct control station transfers of RQ-7BV2 TUAS between two (2) or more UMS, have the ability to conduct laser and weapons training, and must simulate the RQ-7BV2 TUAS configurations with the functionality, fidelity (including motion cues) and visual system (including interoperable, geo-specific terrain databases); command,

control, communications, computers, intelligence, surveillance, and reconnaissance (C4ISR); and training environment capabilities required to train to standard the individual/crew tasks with no negative habit transfer. Functionality and fidelity must include high fidelity flight models and flight control capabilities.

- The ET and UMS must be LVC-IA compliant and fair fight interoperable with LVC-ITE via local area network (LAN) and wide area network (WAN).

- UAS concurrency of the ET and UMS must be maintained. RQ-7BV2 TUAS modifications that impact training must be incorporated into each ET and UMS no later than six months after fielding of the associated system component modifications to the first unit using that simulator. RQ-7BV2 TUAS modifications will be analyzed jointly by the training integrated product team (IPT) to determine training impact and resulting simulator upgrade requirements. Upgrades to the UMS due to obsolescence of training system components must be provided.

- The UMS must be deployable and must be transportable to multiple training sites and deployment areas within and outside of the Continental United States (CONUS) by land (rail and along improved and unimproved surfaces), sea (ship), and air.

- The ET and UMS must be capable of uploading digital data from mission planning systems; e.g., Aviation Mission Planning System (AMPS)/Joint Mission Planning System (JMPS)/Portable Flight Planning System (PFPS) and Falcon View.

- The ET and UMS must be capable of voice (including simulator intercom) and data communications IAW ground control station capabilities and applicable connectivity to the air and ground systems and elements participating in a training session to include other simulators, semi-automated forces (SAF) elements, and any elements represented by the instructor/operator through role play. The UMS must be capable of voice (including simulator intercom) and data communications to and from

the instructor/operator station (IOS) as required by the instructor/operator for training purposes and training session control.

- Training environment capabilities for the ET and UMS must include an IOS, training debrief capabilities, OneSAF, environmental and meteorological conditions (including day; night; extreme temperatures; adverse weather conditions; blowing snow, dust, and sand; and brownout and whiteout conditions), the insertable degraded operations, malfunctions, and failures required to support task training and day/night imagery capabilities.

- IOS capabilities must include an intuitive user interface. The capability must be provided to allow students to train without an instructor/operator sitting at the IOS. IOS operations will be designed at the lowest possible level of complexity to minimize the instructor/operator burden on unit personnel. The IOS must include the capability to insert the failures/malfunctions required to support performance of individual/crew tasks to standard, including failures/malfunctions required to support emergency procedure training.

- Training debrief capabilities for individual/crew level training requirements must include the capabilities to record (on digital media), play back, pause, resume, restart at the beginning of the training session, and mark events during the training session for the debrief session. The capability to reset the training session to the beginning of the session or any of the marked events must be provided. The capability to pause/resume the recorded data during the debrief session must be provided. Playback capabilities must be provided at faster and slower than real time speeds. The capability must be provided to conduct training debrief at an external location.

- The ET and UMS One Semi Automated Forces (OneSAF) capability must be integrated as soon as it is available.

- Interoperable, geo-specific terrain databases for the ET and UMS must be

provided. The capability to rapidly modify and develop additional interoperable, geo-specific terrain databases to support future training and mission rehearsal requirements must be provided. The UMS terrain databases must be compatible with standard National Geospatial-Intelligence Agency (NGA) products to support use on mission planning systems (e.g., AMPS/JMPS) and must be correlated to geo-specific terrain corresponding to NGA produced 1:50,000 maps.

- Government ready-for-training (RFT) accreditation of the ET and UMS must be completed prior to acceptance of the device for student training.

- RQ-7Bv2 Shadow modeling information is developed for use in Games For Training, such as VBS-3.

PEO-STRI will provide the overall hardware maintenance and support of the TADSS at the 2-13 AVR for the RQ-7BV2 TUAS. A Memorandum of Agreement (MOA) prepared by PM-UAS covering TADSS support for RQ-7BV2 TUAS will be coordinated with, and agreed to by, all parties concerned to ensure support requirements are delineated prior to transfer from the PM-UAS to the receiving units.

6.1.1.3.1 Training Aids

The RQ-7BV2 TUAS training aids will be used to support training. Those aids will provide a means for reducing the training development/training costs and improving efficiency. The RQ-7BV2 TUAS training aids will clarify information and will be presented in a concise, efficient manner during training. The training aids may include flash cards, flip charts, slides, posters, pictures, transparencies, Visual Modification sets (VISMODS), Graphic Training Aids (GTA), Models (Inert Munitions), maps and overlays, terrain models, equipment and personnel models, viewgraphs, video or voice recordings, etc.

6.1.1.3.2 Training Devices

Training devices will be required to support institutional training for the RQ-7BV2 TUAS. These training devices must be available in time for use during IKPT and can be three-dimensional objects and associated computer software developed, fabricated, stand-alone, embedded, appended and procured specifically for improving the RQ-7BV2 TUAS total system's learning process. Such training will instill confidence in the Soldiers; will safeguard actual equipment during the training process, and protect all personnel performing runway and flight operations. The MUSE will provide a simulation capability to the UGCS for sustainment and proficiency training for operators and crews. These part-task trainers will also be used to train operators during emplacement and displacement of the system.

- Maintainer Devices . Maintenance training devices must simulate the physical and functional fidelity necessary to train all critical tasks to applicable TRADOC standards. RQ-7Bv2 TUAS maintenance trainers, operator/maintainer simulators, collective simulation, training material, Part Task Trainers, Training aids (i.e. wing cut-away, propeller and hub assembly, engine cut-away, payload, etc...) will be required to support RQ-7BV2 TUAS training.
- Embedded Training (ET) . Embedded training must allow individual and collective training in a joint environment on a digital terrain representation of the actual mission terrain and permit collaborative planning and rehearsal in both stand-alone and networked modes. Simulation-based exercises bring an excellent practice based capability for home station training; however embedded simulation makes that capability deployable. Using advanced IMI, embedded simulation may be more readily applied to training for deployed Soldiers. The conclusion is also supported by UAS training developers; their vision for, and use of, embedded training systems suggest that Level IV IMI (simulation) will be the most utilized component of the embedded simulation system. Individual and collective training relevant to the environment and to the mission with which the unit is being deployed are additional needs such as (language, culture, terrain, weather).
- Collective Training Devices and Simulators . The RQ-7BV2 TUAS collective training devices and simulators must have the capability to simulate, with a high degree of fidelity, the functional capabilities but not necessarily with the physical exactness of the Unmanned Aircraft as required by the user. Simulator fidelity would enable training of collective tasks, to include multiple Unmanned Aircraft (UA) operations as well as Situational Awareness (SA) or mission rehearsal. As outlined within the approved AVCATT CPD 2 Dec 11 (KPP 2 "Systems"), UAS

simulators must train with CATT family simulators thereby allowing commanders to conduct training in a virtual combat environment from team-squad to Brigade Combat Team (BCT) level. The RQ-7BV2 TUAS must simulate Battle Command System (BCS) information exchange allowing leaders to identify, develop, and experiment with new war fighting concepts and capabilities.

- Training Capability . The collective training simulators must be capable of training all operator collective tasks to applicable DA standards.
- Battlefield Management . The collective training simulators must include stations for training battlefield management to crews, commanders and staffs. These stations must simulate management of: maintenance support (repairs and recovery); supply (batteries and parts); operation (command and control); engineer support (obstacle emplacement); fire support (artillery, missile, and close air); and administrative support (casualty and personnel requirements). Commanders must be able to view the battlefield through the One System Remote Video Terminal (OSRVT).
- The PM will be responsible for integration of his system with Homestation Instrumentation System (HITS) and/or the Combat Training Centers (CTCs), Games For Training (GFT), and other LT2-FTS instrumentation systems, as appropriate. The system TADSS must collect and transmit battlefield simulation data to provide appropriate levels of operator feedback at the CTC, drive C4ISR systems, and designed support connectivity to OneTESS and HITS.
- Network Capability . The system TADSS must be DIS/HLA compliant and networkable with other collective training simulators of the Combined Arms Tactical Trainer (CATT) family on the LAN or Longhaul network. The system TADSS must provide connectivity to the CTC, AV TESS, HITS, support battlefield simulations, and collect data for use in After Action Reviews (AAR), system analysis, and provide necessary battlefield control.
- Joint Operations . Collective training is enhanced by the power of information technology and modeling and simulation. RQ-7BV2 TUAS must have access to global joint live-virtual-constructive training environment as well as leader input to drive information and BCS capabilities. This will allow a more focused approach to training as well as providing leaders with a realistic environment for mission planning and rehearsal. RQ-7BV2 TUAS has to leverage embedded, real-time interactive, virtual, distributed, collaborative, joint simulations for training and mission rehearsal.
- TADSS, Interactive Courseware (ICW), CBT, Embedded Training (ET), and CAI will be used to the maximum extent possible. The RQ-7Bv2 TUAS simulators must have a fair fight interoperable with other JTA, SE Core,

DIS, and/or HLA compliant virtual simulators and constructive simulations via LAN and WAN.

- The PM is responsible for development, integration, and life cycle management of TADSS IAW AR 350-38.

RQ-7BV2 TUAS embedded training will be compatible and interoperable with OneTESS, HITS, CTCs, and CTIA and other LT2-FTS instrumentation systems, as appropriate. The system must be backwards compatible with Multiple Integrated Laser Engagement System (MILES) in order to support the conduct of FOF and FOT training exercises. The RQ-7BV2 TUAS will also be Joint Technical Architecture (JTA), High Level Architecture (HLA) and Synthetic Environment (SE) Core compliant.

6.1.1.3.3 Simulators

The RQ-7BV2 TUAS simulators must have the physical and functional capabilities necessary to replicate operations of the actual system for individual and collective combined arms training of all TRADOC critical tasks to appropriate standard. The RQ-7BV2 TUAS training program must enable the operator to conduct training by utilizing the embedded software simulation package (MUSE) in the Universal Ground Control Station (UGCS). This will enable the operator to train and become qualified on the system in a Simulated Environment (SE) without having to launch and fly an actual Unmanned Aircraft (UA). All courseware shall be provided in electronic format that is compliant with the latest version of Shareable Content Object Reference Model (SCORM). The training system is required to support IOT&E. The development of an exact replica of the RQ-7BV2 TUAS (for example: a RQ-7Bv2 TUAS maintenance trainer) to use as a training device to support operator and maintainer training is required and could be more cost-effective/sustainable than using the actual RQ-7BV2 TUAS. Whatever is used, the system must accurately replicate, physically and functionally, all features of the actual aircraft and its systems to preclude negative habit transfer.

- Maintenance TADSS - IAW the STRAP, the PM-UAS must develop maintenance TADSS to support RQ-7BV2 TUAS training at the 2-13 AVR and the NCOA. This must include part task trainers that enable the 2-13 AVR and the NCOA to teach all critical training tasks. It must be delivered to the 2-13 AVR and the NCOA prior to IKPT. These part-task trainers will also be used to train operators and maintainers during emplacement and displacement of the system.

- Mission simulators. The PM UAS must integrate a RQ-7BV2 TUAS capability in the current universal mission simulator (UMS) and the UGCS embedded trainer. This must include an individual, crew, and collective training capability that will support live, virtual, and constructive training environments of the company operating as a system compatible with the MUSE and existing UGCS hardware/software.

- Simulators will simulate Electro-Optical/Infrared (EO/IR), Laser Designation (LD), Laser Range Finder (LRF), Laser Target Marking (LTM), and Synthetic Aperture Radar/Ground Moving Target Indicator (SAR/GMTI), plus any new payloads/payload controls requiring input from the UAS operator resulting from maturing technologies. The system will provide a mission rehearsal capability utilizing actual mission location Digital Terrain Elevation Data (DTED). It will correlate accurate SAR/GMTI imagery. The system will employ real world training scenarios accurately when simulating EO/IR. The database will not be solely developed as proprietary so that it can be updated with minimal cost to the government and will facilitate long term life cycle support. The visual update must show no visual or performance anomalies at a stable 60 Hz. The IR system shall provide an accurate depiction of the terrain, including realistic colors, a realistic thermal model of the tactical environment, vehicles and personnel. The representation of the image must demonstrate environment changes with weather conditions, time of day, activity of targets, etc. The environment must be modeled with thermal properties, for example reflective and emissive components, in order to maintain training realism and prevent negative habit transfer.

- The system must pass Aviation Directorate of Simulation (DOS) evaluation for accuracy in modeling and must guarantee full Validation, Verification, and Accreditation from DOS. It must be completely interoperable with other aviation simulators and match the local and operational training areas with sensor and other capabilities.

- The simulator must allow the payload operator to develop his target acquisition skills to standard, and provide accurate and realistic target detection cues (i.e. Dust trails, smoke, fire, tracks, dismounted infantry, etc). It must support dynamic models for micro-texture for accuracy in acquisition, tracking, targeting, and engaging.

- The system will duplicate all emergency conditions that may be encountered while conducting flight operations and must respond correctly to the inserted fault and the corrective actions by the operator. The RQ-7BV2 TUAS flight dynamic model represents the performance of the real aircraft in any flight regime and reacts realistically to any environmental conditions (i.e. Frozen and unfrozen

precipitation, turbulence, high temperatures) encountered during flight. The simulator must allow for input/reset by an instructor during the flight and for reset to the previous position of the flight following input of an emergency/scenario. It must allow students to experience faults inputted from the Instructor Operator (IO) without advanced notice.

- The RQ-7BV2 TUAS model must be validated against flight tests and the system must allow the Aircraft Operator (AO) to maintain proficiency with the current system, and be fully accredited to offset live training hours in the same manner as aviation simulators. The system must also have an automated performance monitoring system for feedback to the operators and IO that enable the unit to conduct post-flight After Action Reviews (AAR). System must have a scenario library for training at different locations and under differing environmental conditions and a means to create specific tactical scenarios to train unique TTP as they are developed and approved.

- It will include the ability for collaborative simulations with other proponent Battle Labs for experimentation purposes and other manned aircraft simulators hooked to the DREN for the purpose of Manned Unmanned teaming.

- For collective training with other system/organizations, the RQ-7BV2 TUAS must be able to accommodate feeds from Semi-Automated Forces (SAF) and Games For Training (GFT) hosts. Embedded training must provide Soldiers and leaders a full task training capability with a readily available system for planning, training and assessing tasks in any combination of live, virtual, and constructive environment. Embedded training must provide feedback and allow leaders to modify conditions or adjust difficulty within a TSP to support a mission rehearsal. Training must support company level and below, individual/operator, crew/team tasks, as well as functional/sustainment and collective task training. Embedded training will permit full RQ-7BV2 TUAS operator training (initial qualification and sustainment) through simulation.

- Additional simulator requirements include:
    - Links to all Major Joint Wargame Simulations/Warfighter Exercises
    - Support for tactical and strategic reconnaissance training
    - Full Simulation of RQ-7BV2 TUAS Launch&Recovery Operations
    - CONOPS and TTP Development
    - Emerging Concepts Experimentation
    - Information Systems Optimization
    - Support for staff training
    - Dynamic Weather Simulation
    - Detailed UGCS Operator Training of the AO&PO

o Sufficient Visual Fidelity to Train UGCS Operations within a Tactical Training Environment (TESS Interoperability.)

6.1.1.3.4 Simulations

The simulation tool used will be a method for implementing any updates to RQ-7Bv2 TUAS model(s) over time. This will be any representation or imitation of reality, to include environment, facilities, equipment, mechanical and maneuver operations, motion, role playing, leadership, etc. It is the representation of salient features, operation, or environment of a system, subsystem, or scenario. Some of the simulation tools used to support the RQ-7BV2 TUAS may include JANUS, Command and Staff Training Simulation, Joint Simulation Training, Visualization Based Training and Support System, Indirect Fire Simulation, Direct Fire Simulation, Area Weapon Simulation, Electronic Warfare (EW) Engagement Simulation, Weapon Effect Simulations, and will include the ability for collaborative simulations with other proponent Battle Labs and other manned aircraft simulators hooked to the DREN for the purpose of Manned Unmanned (MUM) teaming.

The ability to perform simulations of RQ-7Bv2 TUAS operations within the CCTT's Virtual Soldier Module and the Virtual Soldier Multifunction Workstation must be included, to allow not only individual operator training, but also its integration into collective training within CCTT. The embedded training capability will provide interfaces that allow interoperability with the current synthetic training environment that includes live, virtual, and constructive simulators/simulations (e.g. AVCATT [Aviation Combined Arms Tactical Trainer], RCTD [Reconfigurable Training Device], LCT [Longbow Crew Trainer], the OH-58D replacement aircraft, CFFT, WARSIM, and OneSAF) to allow Soldiers to train from the UGCS for deployment and/or collective training.

The RQ-7Bv2 TUAS TADSS shall facilitate training of Army and Joint MUM Teaming both ground and aircraft in a medium threat environments including collaborative simulations. The devices will be in accordance with the USAACE UAS simulation strategy and UAS Training Strategy. New training devices procured for Army UAS systems must fit the MUSE architecture and include MUSE software components (e.g., the ERMP IMS/PIMS/ET design includes the use of actual, tactical flight code integrated with the core MUSE software).

6.1.1.3.5 Instrumentation

The instrumentation that will support the RQ-7Bv2 TUAS training subsystem will be accomplished through digital, audio, video, and hard copy data capture; exercise monitoring and control; after-action review preparation and presentation; and take-home package preparation and presentation. Some of the instrumentation tools used to support the RQ-7Bv2 TUAS may include the Homestation Instrumentation Training System (HITS) , Joint Training Instrumentation, Combat Training Center Instrumentation, Digital Range Instrumentation, Other Service Instrumentation, other LT2-FTS instrumentation systems, etc...

6.1.1.4 Training Facilities and Land

The RQ-7Bv2 TUAS system will occupy the same facilities i.e. (simulator complex, academic classroom/classroom XXI, ranges, maneuver areas, airspace, training sites, Admin/Billeting, hanger, parking facilities, maintenance structure, etc.,) as the RQ-7B UAS. Additional MCA requirements may be required at other installations to support the fielding of associated TADSS.

6.1.1.4.1 Ranges

The RQ-7Bv2 TUAS is equipped with a weapons-grade Laser RangeFinder/Designator (LRF/D) with an objective for weaponization. Sufficient range facilities may be required for conducting initial operator training using dormant variants of the Hellfire missile, the weapons-grade Laser RangeFinder/Designator (LRF/D) and the applicable Crew/Collective Gunnery Table(s). In the event analysis indicates that initial qualification, refresher, or sustainment training cannot be accomplished under virtual conditions, these ranges will require the appropriate airspace, proper range fan availability, as well as impact areas for firing live and/or training munitions.

6.1.1.4.2 Maneuver Training Areas (MTA)

Current maneuver training areas at the institutional level are sufficient to sustain training for RQ-7Bv2 TUAS. The RQ-7Bv2 TUAS will occupy the same ranges, maneuver areas, airspace and training sites as the RQ-7B TUAS.

6.1.1.4.3 Classrooms

Sufficient classrooms are required to be available to support operator, maintainer and technician training. These include traditional classrooms, digital training facilities, and maintenance classrooms.

6.1.1.4.4 CTCs

Use to the maximum extent possible when available.

The CTC Program is to provide highly realistic as well as stressful joint and combined arms training according to Army and Joint doctrine. This training approximates actual combat. RQ-7BV2 TUAS units will develop and conduct tactically sound training scenario missions on approved doctrine for all individual and collective tasks. The RQ-7BV2 TUAS units will interface with CTC Instrumentation Systems (CTC-IS) to broadcast position and payload products and to receive unit task training performance feedback that identifies the need or requirement to develop or revise training scenario missions. The proponent schools will review Center for Army Lessons Learned (CALL) trends (provided by the CTCs CONOP collection efforts) and apply, as appropriate, lessons learned to training and doctrinal products. These areas will include the Joint Readiness Training Center, National Training Center, Joint Multinational and Readiness Center .

6.1.1.4.5 Logistics Support Areas

Sufficient facilities are required for use by field service representatives (FSR) to provide technical support for the operation, maintenance, and sustainment of training systems.

6.1.1.4.6 Mission Command Training Centers (MCTC)

The RQ-7Bv2 TUAS will interface with the MCTC to provide trained and ready combat ARNG units to the Army. The mission of The Mission Training Complex (MTC) is to conduct Mission Command Staff Training (MCST) in order to provide trained and ready combat units to the Army. MTC provides direct training programs and infrastructure and training support to units participating in Mission Command Training Program (MCTP) and the Brigade Mission Command and Staff Training (BMCST) Program.

6.1.1.5 Training Services

The management, acquisition, and support devices that enable the preparation, replication, distribution, and sustainment training will be obtained when required. Some of the considerations that should be reviewed when contracting for training products and for training services include the scope of the training requirement, course control data, instructional materials, devices and equipment to support training, facilities and training environment, instructors and support personnel, and contract management.

6.1.1.5.1 Management Support Services

The RQ-7Bv2 TUAS training subsystem will require management support services from Communicative technologies management (Department of the Army Multimedia Visual Information Production and Distribution Program (DAMVIPDP), Electronic Multimedia Information Capability (EMIC), and Visual Information/Training Support Center VI/TSC management).

These support services will be those efforts that support or contribute to improved program management and sustainment for training programs.

These services will include:

- Information management services (Army Training Information Management Program (ATIMP), and library and information repository services).

- Courseware management services (Intermediate Level Education (ILE) management, multimedia courseware management, and distributed learning management).

- Requirements management services (Training ammunition requirements as detailed by STRAC, TADSS requirements documentation, range modernization, range standardization requirements, and training mission area (TMA) requirements).

- Devices management services (Fielded devices inventory/sustainment and management, Materiel Army-wide Tracking System (MATS), TES management and targetry support program).

6.1.1.5.2 Acquisition Support Services

Fielding of RQ-7Bv2 shall be based on BOI.

6.1.1.5.3 General Support Services

General support services will be required for distribution and replication services, video/tele-training production services, and RQ-7Bv2 TUAS development, procurement, distribution, and sustainment that will support the institutional, operational, and self-development training domains.

6.1.2 Architectures and Standards Component

Architectures and standards will provide the means to ensure integration and interoperability across product lines to support the RQ-7Bv2 TUAS. Architectures are the structure of RQ-7Bv2 TUAS training components, their relationship, and the principles and guidelines governing their design and evolution over time. They will be the framework that describes missions, organizations, and systems; specifies interfaces and interrelationships amongst its various parts; and facilitates coordination and synchronization with internal and external interfaces. The RQ-7Bv2 TUAS training subsystem will be integrated in to three types of architectures-organization, functional, and systems-each of which may have operational, technical, and systems views. Refer to DoDAF guidelines and specific requirement in SE CORE and CTIA.

6.1.2.1 Operational View (OV)

The primary role of the RQ-7Bv2 TUAS in institutional training is support of Initial Military Training (IMT) of Soldiers assigned to MOS 15W (Unmanned Aircraft Systems Operator). The system will be used to train the operator in tactical level RSTA, Communications Relay, and eventually decisive action Target Attack in support of the Brigade commander. It supports joint training through integration with ITE architecture. If it is closely linked with AVCATT, it will gain economy of scale through the capability to operate with an existing system while focused on a unit's operational requirements.

6.1.2.2 Systems View (SV)

The RQ-7Bv2 TUAS will be compatible with ABCS components as well as selected other TADSS, interact with and support AVCATT, and the Integrated Training Environment.

6.1.2.3 Technical View (TV)

RQ-7Bv2 TUAS will support system-to-system compatibility with:

- Common Operating Environment (COE)
- Installation Information Infrastructure Architecture (I3A)
- Army Training Information Architecture (ATIA)
- Common Training Instrumentation Architecture (CTIA)
- Integrated Training Environment (ITE) architecture
- Digital Range Training System (DRTS)
- Standards and specifications for TSS components and subcomponents (e.g., standards and specs for ranges, targeting, classrooms, etc.)
- Sharable content object reference model (SCORM)

6.1.3 Management, Evaluation, and Resource (MER) Processes Component

The TSS MER processes will monitor the health and relevance of the TSS in regards to the RQ-7Bv2 TUAS training subsystem, establish priorities, and align resources against those priorities. They use RQ-7Bv2 TUAS issues and feedback from the force to ensure decisions address real concerns from commanders and Soldiers. MFR processes will employ best business practices to plan, implement, and sustain the TSS. These processes consider both internal and external drivers that impact TSS and guide the development, maintenance, and sustainment of the TSS.

6.1.3.1 Management

Where possible the RQ-7Bv2 TUAS will use existing facilities and support infrastructure. The staff training estimate in support of RQ-7Bv2 TUAS will focus on the most efficient use of existing resources and precisely identify and quantify any expected shortfalls. Training development will focus on producing products that are capable of being used both in the institution and in the operational training domain and focused only on combat critical tasks. Training will incorporate the maximum use of simulators/simulation to mitigate cost and risk.

Students and instructors will be routinely asked to evaluate training events and products to determine how best to improve the quality and efficiency of instruction and training events to provide the best quality training with the least expenditure of resources.

6.1.3.1.1 Strategic Planning

The development and fielding of the RQ-7Bv2 TUAS supports Army Transformation and Training Transformation and is consistent with the guidance found in:

- National Defense strategies
- Joint Vision 2020
- The Army Plan and other Service plans
- Future force documentation
- TRADOC supporting plan to the Army Transformation Campaign Plan (ATCP)
- TSS Strategic Plan (when published)
- TSS Program Strategy Formulation (guidance to be published)

6.1.3.1.2 Concept Development and Experimentation (CD&E)

The TRADOC Futures Center is responsible for chartering Integrated Capabilities Development Teams (ICDT) to lead joint and Army CD&E efforts throughout TRADOC and in cooperation with non-TRADOC proponents. These ICDT will integrate RQ-7Bv2 into CD&E. The charter will synchronize and integrate Army CD&E with joint CD&E, and develop joint concepts and architectures, ICW HQDA, the Joint Staff Functional Capabilities Board (FCB) Working Groups, Joint Forces Command (JFCOM) J9, Northern Command (NORTHCOM), and Strategic Command (STRATCOM); provide direction to TRADOC proponents and/or non-TRADOC proponents to establish an ICDT to develop concepts and execute the Joint Capabilities Integration and Development System/Capabilities Integration and Development System (JCIDS/CIDS) process; Ensure adequate representation from non-TRADOC organizations in these ICDT. The following Futures Center chartered ICDT responsibilities include developing concepts, writing concepts and submitting the concepts to the TRADOC Futures Center (Dir CD&E) for review and approval; Perform the capabilities-based assessment of joint and Army concepts to include conducting FAAs and forwarding FAA results to the Dir CD&E for validation; Conduct FNAs, and forwarding the FNA prioritized list of capability gaps and redundancies to the Dir CD; Perform the DOTMLPF Analysis for the FSA and forwarding recommended non-materiel changes, product improvements to existing materiel or facilities, adoption of interagency, other service, or foreign materiel solutions, and new materiel starts to the Dir CD for validation; Develop ideas for materiel approaches in coordination with Research, Development, and Engineering Command (RDECOM), Research, Development and Engineering Center (RDEC); Conduct AMAs and forwarding the AMA prioritized list of materiel approaches to the Dir CD; Develop operational architecture (OA) products as required by the concept, Initial Capabilities Document (ICD), Capability Development Document (CDD), and Capability Production Document (CPD); Forward OA products to the Dir AIM for validation, integration, and approval and ensuring TRADOC DCSINT approves threats used in concept development and any modeling efforts supporting capabilities developments.

6.1.3.1.3 Research and Studies

The conduct of research and studies will explore science and technology initiatives for potential RQ-7Bv2 TUAS training and training support capabilities that could result in high payoffs on the battlefield. The ultimate goal will be to identify opportunities that will improve the training and education process and result in efficiencies in force readiness. The TSS MER processes also ensure training support capabilities are focused and are not stove piped, redundant, or irrelevant.

6.1.3.1.4 Policy and Guidance

The documents listed below apply to the design, procurement, and use of the RQ-7Bv2 TUAS:

- AR 350-1 Army Training and Leader Development, 3 August 2007.
- AR 350-38 Training Device Policies and Management 15 October 1993.
- AR 73-1 Test and Evaluation 1 August 2006.
- DA PAM 73-1 Test and Evaluation in Support of Systems Acquisition 30 May 2003.
- TRADOC Regulation 350-70 06 Dec 2011 Army Learning Policy and Systems.
- TRADOC PAM 350-70-1 through TRADOC PAM 350-70-12 supporting pamphlets to TRADOC Regulation 350-70.
- TRADOC PAM 525-8-2 w/ C1 06 Jun 2011.
- TC 1-600 Unmanned Aircraft System Commander's Guide and Aircrew Training Manual 23 August 2007.
- FM 3-04.111 Aviation Brigades 7 December 2007.
- AR 95-23 Unmanned Aircraft Regulations, 7 August 2006.
- FM 3-04.15 Multi-Service Tactics, Techniques, and Procedures for the Tactical Employment of Unmanned Aircraft Systems 3 August 2006.
- FMI 3-04.155 Army Unmanned Aircraft System Operations 4 April 2006.

6.1.3.1.5 Requirements Generation

This STRAP supports the Brigade/UA Tactical Unmanned Aerial Vehicle (TUAV) Operational Requirements Document (ORD) to which it accompanies. The ORD was created using the Joint Capabilities Integration and Development System (JCIDS) and this ORD supports and complies with the applicable 42 requirements articulated in the following Capstone Requirements Documents (CRD): Theater 43 Air and Missile Defense (TAMD) dated 01 March 2001, (JROCM 056-01), Global Information 44 Grid (GIG), dated 30 August 01, (JROC 134-01), Combat Identification (CID), Global Air Traffic Management (GATM), and the Mission Need Statement for Theater Air and Missile 1 Defense (TAMD MNS) dated 17 May 1999, (JROCM 065-99).

6.1.3.1.6 Synchronization

The fielding of the RQ-7Bv2 TUAS will be synchronized with the following as applicable:

- Materiel Fielding Plan
- Materiel Transfer Plan
- Army Transformation Campaign Plan (ATCP)
- Implementation Plan for Transforming DoD Training
- TADSS distribution plans
- Unit Set Fielding

6.1.3.1.7 Joint Training Support

The fielding of the RQ-7Bv2 TUAS will be synchronized with the following as applicable:

- Joint Knowledge Development and Distribution Capability (JKDDC)
- Joint Assessment and Enabling Capability (JAEC)
- Joint National Training Capability (JNTC)
- Joint Advanced Distributed Learning Co-Labs
- Joint Professional Military Education

6.1.3.2 Evaluation

The evaluation process will apply to TRADOC activities and The Army School System (TASS) Training Battalions responsible for managing or performing Training Development (TD) or TD-related functions of the RQ-7Bv2 TUAS training subsystem, including evaluation/quality assurance of the training, products, and institutions that present the training. The RQ-7Bv2 TUAS training subsystem evaluation process will provide the feedback mechanisms to measure, audit, and analyze the efficiency and effectiveness of the training subsystem in meeting its stated requirements.

6.1.3.2.1 Quality Assurance (QA)

An Army training/education evaluation and quality-assurance program for the RQ-7Bv2 TUAS, which apply to the training courses, products, and supporting institutions, will be accomplished through a systematic collection and analysis of user feedback concerning the effectiveness of training in which these programs will provide a foundation for assessing performance deficiencies and identifying successful initiatives. The RQ-7Bv2 TUAS training and training development proponents will conduct evaluations to verify that the training development process results in training materials that reflect current doctrine, organizational structures, and materiel systems. Other QA programs provided by TRADOC, ATSC, Center and the proponent schools can be incorporated to evaluate the effectiveness of their training products.

6.1.3.2.2 Assessments

Assessments will be those actions that make an evaluation of the RQ-7Bv2 TUAS Training Subsystem and its relevance to the training process. Examples of assessment tools include:

- Training evaluation and analyses
- Monthly status reports
- Risk Assessment
- Strategic Readiness System

6.1.3.2.3 Customer Feedback

The following tools will be used to obtain customer feedback which includes those actions that allow for the evaluative and corrective information about the RQ-7Bv2 TUAS Training subsystem. Those tools for feedback include:

- Electronic media for surveys, help desks, collaboration
- Interviews
- Questionnaires
- Critiques
- Site Visits

6.1.3.2.4 Lessons Learned/After-Action Reviews (AARs)

Lessons learned/AARs will be those actions that allow for the collection, analysis, and dissemination of data from a variety of current and historical sources to support efficient and effective RQ-7Bv2 TUAS Institutional Training operations. Examples of sources of lessons learned include CALL documentation (repositories, newsletters, etc), AAR take home packages, critiques, follow-up surveys with gaining units, etc...

6.1.3.3 Resource

The TNGDEV will enter the output of the ADDIE process into the Training Requirements Analysis System (TRAS) which informs the Planning, Programming, Budgeting, and Executing System (PPBES) process through the Training and Leader General Officer Steering Committee (TLGOSC), which is chaired by the HQDA Deputy Chief of Staff (DCS) G3. Using TSS MER processes, the TNGDEV provide RQ-7Bv2 TUAS training support investment input to the TSS master plan. In cooperation with CBTDEVs, MATDEVs, and TLGOSC Councils of Colonels (CoC), the TNGDEV presents the TLGOSC with integrated training investment strategies that will resource the training support needs of the Army. The primary method by which TSS resource requirements feed the Program Objective Memorandum (POM) process will be through the TLGOSC which receives input from the following main CoCs to include:

- STRAC CoC
- Training Support CoC
- Training Mission Area
- FDCC
- Range and Training Land Symposium

Item Resourced	Prior	FY13Yrs or $K	FY14Yrs or $K	FY15Yrs or $K	FY16Yrs or $K	FY17Yrs or $K	FY18Yrs or $K
Manpower - TNGDEV							
Contractor							
Civilian							
Enlisted							
Warrant							
Officer							
Contract/Spt							

Civ Pay							
Trvl/Per Diem	$54.5K		$18.9K	$12.6K	$11.2K	$9.8K	$9.0K
Other							

Rationale:Travel/Per Diem amounts represent cost to present DTT to gaining units . TDY costs are based on four days at a total of $2250.00 per trip. Cost breakdown for one Soldier per trip: $1200.00 travel + $600.00 per diem + $450.00 rental car and fuel.

Item Resourced	Prior	FY13Yrs or $K	FY14Yrs or $K	FY15Yrs or $K	FY16Yrs or $K	FY17Yrs or $K	FY18Yrs or $K
New Equipment Training	$5930K	$1608K	$9187K	$8893K	$9062K		$9905K
Contractor							
Contract/Spt							
Trvl/Per Diem							
Classrooms							
Equipment							
AC/DC Power							
Printing							
Other							

Rationale: Each NET will be conducted with each fielding at a cost of $86,000.00 per NET for travel, per diem, and rentals. This includes contractors, military officers and enlisted personnel.

Item Resourced	PriorYrs or $K	FY13Yrs or $K	FY14Yrs or $K	FY15Yrs or $K	FY16Yrs or $K	FY17Yrs or $K	FY18Yrs or $K

Training Products	5MY		1MY	1MY	1MY	1MY	1MY
Training Pubs							
TSP							
IMI							
ETM							
STP							
IETM							
ARTEP/MTP							
Printing							
Distribution							
Other							

Rationale: Personnel are required to maintain, revise, and update evolving doctrine, STP, and ARTEP/MTP.

Item Resourced	Prior	FY13Yrs or $K	FY14Yrs or $K	FY15Yrs or $K	FY16Yrs or $K	FY17Yrs or $K	FY18Yrs or $K
TADSS	$21,424K	$4607K			$6411K		
Training Aids							
Devices							
Simulators							
Simulations							
GTA							
Software							
Trng Equip*							
Equipment							

Printing							
Shipment							
Sustainment							
Other							

Rationale: Civilians and Soldiers are required to conduct training and maintain the software for the simulators.

Item Resourced	Prior	FY13Yrs or $K	FY14Yrs or $K	FY15Yrs or $K	FY16Yrs or $K	FY17Yrs or $K	FY18Yrs or $K
Facilities/Land	$1100k			$300k			$350K
Facilities							
Land							
Site Surveys							
Concrete Pad							
AC/DC Power							
Equipment							
Maintenance							
Other							

Rationale: Funds are allocated for facilities maintenance as well as runway maintenance.

Item Resourced	Prior	FY13Yrs or $K	FY14Yrs or $K	FY15Yrs or $K	FY16Yrs or $K	FY17Yrs or $K	FY18Yrs or $K
Training Services/TII	5MY		1MY	1MY	1MY	1MY	1MY
LMS							
Services							
Servers							

Licenses							
IT Support							
Other							

Rationale: PEO-STRI is contracted with the overall maintenance and support of the CBT equipment at the 2-13 AVR for Shadow UAS.

Item Resourced	Prior	FY13Yrs or $K	FY14Yrs or $K	FY15Yrs or $K	FY16Yrs or $K	FY17Yrs or $K	FY18Yrs or $K
Eval/QA				$12k			$15k
Contractor							
Civilian							
Enlisted							
Warrant							
Officer							
Contract/Spt							
Civ Pay							
Trvl/Per Diem							
Facilities							
Equipment							
Printing							
TEA							
PFTEA							
Other							

Rationale: Travel/Per Diem amounts represent cost to conduct unit evaluations. TDY costs are based on four days at a total of $2250.00 per trip. Cost breakdown for one Soldier per trip: $1200.00 travel + $600.00 per

diem + $450.00 rental car and fuel.

7.0 Operational Training Domain

The objective of RQ-7Bv2 TUAS operational training is unit and individual/crew combat readiness – the development of lethal teams, Soldiers, and leaders.

RQ-7Bv2 training observables:

- Field commanders will continue to employ the principles of Army training to train mission-essential tasks at the larger and smaller unit-level.

- Unit training will be hands-on, experiential, and standards based.

- The intent will be to provide leaders, units, and Soldiers with a realistic, operationally relevant training environment that replicates decisive action operations.

- Meeting these requirements will require an integrated enhanced Training and Leader Development Model, enabled by an integrated TSS that will link the Soldier and leader to the centers and schools and the CTCs through a Global Joint Training Infrastructure (GJTI).

- Units will conduct pre-deployment training at home stations and CTCs.

- They will also conduct rehearsal en route to the area of operations (AO), while executing the mission in the AO, and during transition.

- During each phase of training, Soldiers will receive support from schools and centers.

7.1 Operational Training Concept and Strategy

Operator sustainment training will use the MUSE system that provides real-time operator-in-the-loop simulations of multiple systems for creating realistic operational environments. The MUSE must conform to and be compatible with the Combined Arms Training Strategy (CATS) and the Digital Training Management System (DTMS). Map exercises and crew drills will also be utilized to maintain maximum operator efficiency and readiness. Sustainment training will be available to units through the use of TTP, NET TSP, and Distributive Learning (DL). Normal job performance in the fielded units will provide proficiency training for UAS shelters and airframes. Unit training will be conducted initially through NET as the RQ-7Bv2 TUAS is fielded. All NET training materials will be provided to the unit so that the unit can develop its sustainment-training program. Unit sustainment training will be conducted on three levels, individual, crew, and collective. Each RQ-7Bv2 TUAS will have an on-board Embedded Training (ET) capability to allow sustainment training in either a garrison or field environment. The ET system will provide Individual (Category A) Embedded Training (ET) and Crew/Team (Category B) ET capabilities. New RQ-7Bv2 TUAS crewmembers will sustain individual training skills through weekly MOS training, on-board Individual ET, crew drills, Situational Training Exercises (STX), Command Post Exercises (CPX) and Field Training Exercises (FTX). Collective training will be conducted at section/crew, platoon, and company or battalion level. Collective training skills will be acquired and sustained through repetitious application of crew drills, STX, CPX, FTX, the Army Training and Evaluation Program (ARTEP) and similar exercises. New RQ-7Bv2 TUAS crews will also sustain crew skills. New RQ-7Bv2 TUAS crews will conduct Functional Level training using the ET system connected to various C2 nodes from platoon to battalion and training simulations to provide the ability to conduct or play in realistic training exercises. The goal of collective training will be to develop critical teamwork skills at various echelons. The Multiple Unified Simulation Environment (MUSE) will provide an embedded simulation capability to the RQ-7Bv2 TUAS. MUSE will also provide input to the Target Signature Array (TSA) capability for use in the Intelligence and Electronic Warfare Tactical Proficiency Trainer (IEWTPT). IEWTPT will also provide sustainment and proficiency training for Joint Command and Battle Staff. Each RQ-7Bv2 TUAS system will have an Embedded Training (ET) capability to allow sustainment training in either a garrison or field environment. RQ-7Bv2 TUAS crewmembers will use the individual level ET on-board for sustainment training. Training on field level maintenance will consist of troubleshooting, identification of system specific malfunctions, modular

replacement, adjustments requiring specific tools, and recovery operations from the immediate battle area as identified in the Maintenance Allocation Chart (MAC) and will also include BDAR tasks.

7.1.1 Product Lines

The product lines needed to train the trainers and Soldiers in the operational domain will be delivered by the materiel developer. RQ-7Bv2 TUAS product lines will require upgrades to TADSS, CATS, DTMS and TSP and be delivered by the material developer to the RQ-7Bv2 TUAS operational training domain and ACOM sites as needed.

7.1.1.1 Training Information Infrastructure

The RQ-7Bv2 TUAS training subsystem will interface with the Integrated Training Environment (ITE) through the Simulation Environment (SE) Core. SE Core is the Army's virtual component of the ITE architecture. SE Core will develop new and integrate existing hardware and software products to create the Army's common virtual environment (CVE). The objective will be to link system and non-system virtual simulations into a fully integrated training capability. SE Core is a key element in the Army's Training Transformation plan to link the Brigade Modernization Command's (BMC) embedded multi-mode (ITE) training capability with current and Stryker Forces and joint-interagency-intergovernmental-multinational (JIM) virtual simulators. SE Core components include standard virtual visual models, OneSAF (One Semi-Automated Force) integration, standard terrain database (TDB) generation process, master TDB open format, dynamic terrain, atmospheric effects, Chemical, Biological, Radiological, Nuclear And High-Yield Explosive (CBRNE) effects, and integrated after action review (AAR). Once developed, SE Core's standard components will reduce redundancy, increase realism and facilitate the ITE. The MUSE will provide a simulation capability to the RQ-7Bv2 TUAS system. MUSE will also provide input to the Target Signature Array (TSA) capability for use in the Intelligence and Electronic Warfare Tactical Proficiency Trainer (IEWTPT). IEWTPT will also provide sustainment and proficiency training for Joint Command and MI Battle Staff.

7.1.1.1.1 Hardware, Software, and Communications Systems

The interconnected local and global network infrastructure to facilitate the dissemination and delivery of RQ-7Bv2 TUAS training support information include the Central Army Registry (CAR), dL repositories, Army Training Network (ATN) repository, and VTT.

7.1.1.1.2 Storage, Retrieval, and Delivery

The interconnected local and global network infrastructure to facilitate the dissemination and delivery of RQ-7Bv2 TUAS training support information include the Central Army Registry (CAR), dL repositories, Army Training Network (ATN) repository, and VTT.

7.1.1.1.3 Management Capabilities

Information and training management capabilities will align with current RQ-7B Shadow UAS management capabilities, to include:

- Army Training Network (ATN)
- Unit Training Management (UTM)
- Digital Training Management System (DTMS)
- Combined Arms Training Strategy (CATS)

7.1.1.1.4 Other Enabling Capabilities

Interoperability and data exchange as required by the Training Support System (TSS) will exist with the ATIA, the CTIA, and the Live-Virtual-Constructive Integrated Architecture (LVC-IA) to support the primary components of the TSS Training Information Infrastructure (TII). Additionally, the capability for common communications and data exchange operating environment integral to the Brigade Combat Modernization would be incorporated into the system.

7.1.1.2 Training Products

RQ-7Bv2 TUAS training subsystem will require upgrades to software, hardware, databases, and the TSP delivered by the material developer to RQ-7Bv2 TUAS sites as needed for the life cycle of the system.

Integrated Training Environment (ITE): RQ-7Bv2 TUAS will interface with the ITE through SE Core. The RQ-7Bv2 UA will be interoperable with One Tactical Engagement Simulation System (OneTESS), Homestation Instrumentation Training System (HITS), maneuver Combat Training Centers (CTC), and Common Training Instrumentation Architecture (CTIA). The system will be backwards compatible with Multiple Integrated Laser Engagement System (MILES) in order to support the conduct of Force-on-Force (FOF) and Force-on-Target (FOT) training. Live Force-on-Force (FOF) training at home station, local training areas, maneuver CTC, and deployed training sites will be required to validate the ability of units to employ the RQ-7Bv2 TUAS within the force, and mission rehearsal needs.

7.1.1.2.1 Courseware

See Paragraph 6.1.1.2.1

7.1.1.2.2 Courses

Course Name See paragraph 6.1.1.2.2	**Course Number**
Initial Military Training	

Professional Military Education (PME)	
Functional And ASI	

Mobilization	

7.1.1.2.3 Training Publications

Publications The publications for operational training will include Field Manuals, Training Circulars, Technical Manuals, Unit CATS, and Soldier Training Publications required to support the RQ-7Bv2 TUAS training program. Those publications are defined in paragraph 6.1.1.2.3.	**Publication Date**
Field Manuals	

Technical Manuals	

Soldier Training Publications	
Special Texts	

7.1.1.2.4 TSP

See Paragraph 6.1.1.2.4

7.1.1.3 TADSS

See Paragraph 6.1.1.3

7.1.1.3.1 Training Aids

See Paragraph 6.1.1.3.1

7.1.1.3.2 Training Devices

See Paragraph 6.1.1.3.2

7.1.1.3.3 Simulators

See Paragraph 6.1.1.3.3

7.1.1.3.4 Simulations

See Paragraph 6.1.1.3.4

7.1.1.3.5 Instrumentation

See Paragraph 6.1.1.3.5

7.1.1.4 Training Facilities and Land

Training facilities and land must be provided to support current and future ATM requirements. PM-UAS will ensure the cost analysis for training facilities and land are the permanent or semi-permanent facilities, such as the ranges, maneuver training areas, classrooms, battle simulation centers, CTCs, and land that support training. This effort will allow the UAS gaining unit and installation a sufficient planning domain. Installations gaining RQ-7Bv2 TUAS system will use funding under the Military Construction, Army (MCA) program. The MCA program is a system by which Army facilities are planned, programmed, designed, budgeted, constructed, and disposed of during peacetime and under mobilization conditions. The UAS training facilities was designed in accordance with AR 420-1 which outlines the Department of the Army Facilities Standardization Program. This is a formal process for developing Army Standards and Standard Design/Criteria that define the requirements and functional criteria for facilities that will be used in project programming, design, and construction for both new facilities and major renovations. Army Standards and the Facility Standard Designs/Criteria must be used where they exist for the facility type, unless the installation has obtained the proper waiver approval.

The construction plans for all Army UAS training facilities including land for permanent facilities was approved on 08 JUN 2009. The design outlines an initiative to construct a standard design UAS operations and maintenance hangar. Work includes an aircraft hangar, associated maintenance shops, administrative space, aircraft pavements, storage and loading dock information systems, fire protection and alarm systems, and Energy Monitoring Control Systems (EMCS) connection. Sustainable Design and Development (SDD) and Energy Policy Act of 2005 (EPAct05) features will be provided. Supporting facilities include site development, utilities and connections, lighting, paving, parking, walks, curbs and gutters, storm drainage, information systems, landscaping and signage. Heating and air conditioning will be provided by (self contained system/connection to the existing energy plant/etc.). Measures in accordance with the Department of Defense (DoD) Minimum Antiterrorism for Buildings standards will be provided. Comprehensive building and furnishings related interior design services are required. Access for individuals with disabilities will be provided.

7.1.1.4.1 Ranges

See Paragraph 6.1.1.4.1

7.1.1.4.2 Maneuver Training Areas (MTA)

Maneuver training areas must support launch/recovery operations and UAS refresher, sustainment, and operator readiness level flights IAW ATP currency requirements.

7.1.1.4.3 Classrooms

Existing classrooms within unit will be utilized to conduct classroom training.

7.1.1.4.4 CTCs

See Paragraph 6.1.1.4.4

7.1.1.4.5 Logistics Support Areas

See Paragraph 6.1.1.4.5

7.1.1.4.6 Mission Command Training Centers (MCTC)

See Paragraph 6.1.1.4.6

7.1.1.5 Training Services

See Paragraph 6.1.1.5

7.1.1.5.1 Management Support Services

See Paragraph 6.1.1.5.1

7.1.1.5.2 Acquisition Support Services

See Paragraph 6.1.1.5.2

7.1.1.5.3 General Support Services

See Paragraph 6.1.1.5.3

7.1.2 Architectures and Standards Component

See Paragraph 6.1.2

7.1.2.1 Operational View (OV)

See Paragraph 6.1.2.1

7.1.2.2 Systems View (SV)

See Paragraph 6.1.2.2

7.1.2.3 Technical View (TV)

See Paragraph 6.1.2.3

7.1.3 Management, Evaluation, and Resource (MER) Processes Component

See Paragraph 6.1.3

7.1.3.1 Management

See Paragraph 6.1.3.1

7.1.3.1.1 Strategic Planning

See Paragraph 6.1.3.1.1

7.1.3.1.2 Concept Development and Experimentation (CD&E)

See Paragraph 6.1.3.1.2

7.1.3.1.3 Research and Studies

See Paragraph 6.1.3.1.3

7.1.3.1.4 Policy and Guidance

See Paragraph 6.1.3.1.4

7.1.3.1.5 Requirements Generation

See Paragraph 6.1.3.1.5

7.1.3.1.6 Synchronization

See Paragraph 6.1.3.1.6

7.1.3.1.7 Joint Training Support

See Paragraph 6.1.3.1.7

7.1.3.2 Evaluation

The same processes will be used as for the institutional domain as they apply to unit training events and with a heavier emphasis on AARs to include capturing training events and use of instant replays.

7.1.3.2.1 Quality Assurance (QA)

See Paragraph 6.1.3.2.1

7.1.3.2.2 Assessments

See Paragraph 6.1.3.2.2

7.1.3.2.3 Customer Feedback

See Paragraph 6.1.3.2.3

7.1.3.2.4 Lessons Learned/After-Action Reviews (AARs)

See Paragraph 6.1.3.2.4

7.1.3.3 Resource Processes

The annual operating miles and/or hours for the RQ-7Bv2 TUAS system and support equipment in an organization is considered the OPTEMPO. Commanders will use OPTEMPO to forecast and allocate funds for fuel and repair parts for operational training and other sustainment events. Any RQ-7Bv2 TUAS Platoon OPTEMPO indicators that might have potential impacts on the Installation's Long Range Plan are included in the budget submission.

Item Resourced	Prior	FY13 Yrs or $K	FY14 Yrs or $K	FY15 Yrs or $K	FY16 Yrs or $K	FY17 Yrs or $K	FY18 Yrs or $K
Manpower - TD							
Contractor							
Civilian							
Enlisted							
Warrant							
Officer							

Contract/Spt							
Civ Pay							
Trvl/Per Diem							
Other							

Rationale:

Item Resourced	Prior	FY13 Yrs or $K	FY14 Yrs or $K	FY15 Yrs or $K	FY16 Yrs or $K	FY17 Yrs or $K	FY18 Yrs or $K
New Equipment Training							
Contractor							

Contract/Spt							
Trvl/Per Diem							
Classrooms							
Equipment							
AC/DC Power							
Printing							
Other							

Rationale:

Item Resourced	Prior Yrs or $K	FY13 Yrs or $K	FY14 Yrs or $K	FY15 Yrs or $K	FY16 Yrs or $K	FY17 Yrs or $K	FY18 Yrs or $K

Training Products							
Training Pubs							
TSP							
IMI							
ETM							
STP							
IETM							
ARTEP/MTP							
Printing							
Distribution							
Other							

Rationale:

Item Resourced	Prior	FY13 Yrs or $K	FY14 Yrs or $K	FY15 Yrs or $K	FY16 Yrs or $K	FY17 Yrs or $K	FY18 Yrs or $K
TADSS	$21,424K	$4607K			$6411K		
Training Aids							
Devices							
Simulators							
Simulations							
GTA							
Software							

Trng Equip*							
Equipment							
Printing							
Shipment							
Sustainment							
Other							

Rationale: Civilians and Soldiers are required to conduct training and maintain the software for the simulators.

Item Resourced	Prior	FY13 Yrs or $K	FY14 Yrs or $K	FY15 Yrs or $K	FY16 Yrs or $K	FY17 Yrs or $K	FY18 Yrs or $K
Facilities/Land							

Facilities							
Land							
Site Surveys							
Concrete Pad							
AC/DC Power							
Equipment							
Maintenance(Runway)			$30K		$34.3K		$39.0K
Other							
Fuel			$7K	$9K	$11K	$14K	$19K

Rationale: Funds are allocated for facilities maintenance as well as runway maintenance. Fuel costs will impact unit resourcing requirements.

	Prior	FY13	FY14	FY15	FY16	FY17	FY18

Item Resourced		Yrs or $K	Yrs or $K	Yrs or $K	Yrs or $K	Yrs or $K	Yrs or $K
Training Services/TII							
LMS							
Services (ATC)			$24K	$29K	$31K	$$34K	$41K
Servers							
Licenses							
IT Support							
Other							

Rationale: ATC services provided will impact Installation resourcing requirements.

Item Resourced	Prior	FY13 Yrs or $K	FY14 Yrs or $K	FY15 Yrs or $K	FY16 Yrs or $K	FY17 Yrs or $K	FY18 Yrs or $K
Eval/QA							
Contractor							
Civilian							
Enlisted							
Warrant							
Officer							
Contract/Spt							
Civ Pay							
Trvl/Per Diem							

Facilities							
Equipment							
Printing							
TEA							
PFTEA							
Other							

Rationale:

8.0 Self-Development Training Domain

The Self-development products will be prepared for common databases, will support reuse with other systems, and will be accessible on systems worldwide. Training repositories will be reachable from the classrooms, remote locations, hardware platforms, barracks, homes, and business environments. Capabilities will exist to support operator, maintainer, commander, leader, and staff development by providing access and connectivity to all levels of Army and joint knowledge systems via the Army Learning Management System (ALMS) and the Army Training Network (ATN). Learning management systems will be available that provide the capability to manage career-paths, determine and plan future training requirements and track training. The ability to access, retrieve, and complete secure, networked testing materials and receive results will allow students to monitor their progress and assess areas of strengths and weaknesses.

8.1 Self-Development Training Concept and Strategy

The RQ-7Bv2 TUAS will be fielded to units under the Unit Set Fielding (USF) concept at home station. Units will be fielded the RQ-7Bv2 TUAS, all applicable TADSS, and TSP during USF. NET focuses on three functions - operations and maintenance, employment of the RQ-7Bv2 TUAS, and conducting self-development training. The NET Team will be composed of contractors and will use a train the trainer approach. NET will leverage CBT, IMI, and Soldiers will train on the newly fielded systems, and TADSS. All institutional courses will be available in IMI as either CBT in a standalone digital media format or as web-based training hosted on the Army Learning Management System. Courseware will comply with the SCORM. Training will emphasize Distributed Learning (dL) through packages that are in the form of electronic portable media, will include any procedural or doctrinal changes, and any upgrades or other changes to the training. The material developer, in conjunction with the proponent training developer, creates and fields the dL packages that involve system-specific upgrades and changes in payloads, pre-planned product improvements, and quick reaction capabilities. The units must have access with web browser capability, which will be used as training tools for all training packages generated by the material developer. These packages will be maintained by the dL office at USAACE. This largely software solution would allow training on individual operator tasks on the RQ-7Bv2 TUAS on a typical personal computer or laptop. The system would use the actual operator controller unit interfaced with the PC to provide simulated RQ-7Bv2 TUAS operations in varied scenarios and missions. Embedded training for the Shadow system will primarily utilize the Multiple Unified Simulation Environment (MUSE) will provide an embedded simulation capability to the RQ-7Bv2 TUAS. MUSE will also provide input to the Target Signature Array (TSA) capability for use in the Intelligence and Electronic Warfare Tactical Proficiency Trainer (IEWTPT).

8.1.1 Product Lines

The product lines will provide the capabilities that trainers and Soldiers need to conduct training in the operational, and self-development domains.

8.1.1.1 Training Information Infrastructure

The RQ-7Bv2 TUAS and training subsystem will interface with the Integrated Training Environment (ITE) through the Simulation Environment (SE) Core. SE Core will develop new and integrate existing hardware and software products to create the Army's common virtual environment (CVE). The objective will be to link system and non-system virtual simulations into a fully integrated training capability. SE Core is a key element in the Army's Training Transformation plan to link the BCTM embedded multi-mode (ITE) training capability with current and Stryker Forces and joint-interagency-intergovernmental-multinational (JIM) virtual simulators. SE Core components include standard virtual visual models, Objective OneSAF (One Semi-Automated Force) (OOS) integration, standard terrain database (TDB) generation process, master TDB open format, dynamic terrain, atmospheric effects, Chemical, Biological, Radiological, Nuclear And High-Yield Explosive (CBRNE) effects, and integrated after action review (AAR). Once developed, SE Core's standard components will reduce redundancy, increase realism and facilitate and ITE. The Multiple Unified Simulation Environment (MUSE) will provide a stimulation capability to the RQ-7Bv2 TUAS system. MUSE will also provide input to the Target Signature Array (TSA) capability for use in the Intelligence and Electronic Warfare Tactical Proficiency Trainer (IEWTPT). IEWTPT will also provide sustainment and proficiency training for Joint Command and Battle Staff.

8.1.1.1.1 Hardware, Software, and Communications Systems

The interconnected local and global network infrastructure to facilitate the dissemination and delivery of RQ-7Bv2 TUAS training support information include Central Army Registry (CAR), Distributed Learning (DL) repositories, Army Training Network (ATN) repository, and Video Teletraining (VTT).

8.1.1.1.2 Storage, Retrieval, and Delivery

The interconnected local and global network infrastructure to facilitate the dissemination and delivery of RQ-7Bv2 TUAS training support information include Central Army Registry (CAR), Distributed Learning (DL) repositories, Army Training Network (ATN) repository, and Video Teletraining (VTT).

8.1.1.1.3 Management Capabilities

Information and training management capabilities include the Army Training Network (ATN); the Unit Training Management (UTM); the Digital Training Management System (DTMS); and the Combined Arms Training Strategy (CATS) will align with current RQ-7B Shadow UAS management practices.

8.1.1.1.4 Other Enabling Capabilities

See Paragraph 7.1.1.1.4

8.1.1.2 Training Products

See Paragraph 7.1.1.2

8.1.1.2.1 Courseware

See Paragraph 6.1.1.2.1

8.1.1.2.2 Courses

Course Name See Paragraph 6.1.1.2.2	**Course Number**
Initial Military Training	

Professional Military Education (PME)	
Functional And ASI	

Mobilization	

8.1.1.2.3 Training Publications

Publications The publications for operational training will include Field Manuals, Training Circulars, Technical Manuals, and Soldier Training Publications require to support the RQ-7Bv2 TUAS training program. Those publications are defined in paragraph 6.1.1.2.3.	**Publication Date**
Field Manuals See Paragraph 6.1.1.2.3	

Technical Manuals	

Soldier Training Publications	
Special Texts	

8.1.1.2.4 Training Support Package (TSP)

See Paragraph 6.1.1.2.4

8.1.1.3 Training Aids, Devices, Simulators and Simulations (TADSS)

See Paragraph 6.1.1.3

8.1.1.3.1 Training Aids

See Paragraph 6.1.1.3.1

8.1.1.3.2 Training Devices

See Paragraph 6.1.1.3.2

8.1.1.3.3 Simulators

See Paragraph 6.1.1.3.3

8.1.1.3.4 Simulations

See Paragraph 6.1.1.3.4

8.1.1.3.5 Instrumentation

See Paragraph 6.1.1.3.5

8.1.1.4 Training Facilities and Land

See Paragraph 6.1.1.4

8.1.1.4.1 Ranges

See Paragraph 6.1.1.4.1

8.1.1.4.2 Maneuver Training Areas (MTA)

See Paragraph 6.1.1.4.2

8.1.1.4.3 Classrooms

See Paragraph 6.1.1.4.3

8.1.1.4.4 CTCs

See Paragraph 6.1.1.4.4

8.1.1.4.5 Logistics Support Areas

See Paragraph 6.1.1.4.5

8.1.1.4.6 Mission Command Training Centers (MCTC)

See Paragraph 6.1.1.4.6

8.1.1.5 Training Services

See Paragraph 6.1.1.5

8.1.1.5.1 Management Support Services

See Paragraph 6.1.1.5.1

8.1.1.5.2 Acquisition Support Services

See Paragraph 6.1.1.5.2

8.1.1.5.3 General Support Services

See Paragraph 6.1.1.5.3

8.1.2 Architectures and Standards Component

See Paragraph 6.1.2

8.1.2.1 Operational View (OV)

See Paragraph 6.1.2.1

8.1.2.2 Systems View (SV)

See Paragraph 6.1.2.2

8.1.2.3 Technical View (TV)

See Paragraph 6.1.2.3

8.1.3 Management, Evaluation, and Resource (MER) Processes Component

The self development training domain MER processes will monitor the health and relevance of the self development training in regards to the RQ-7Bv2 TUAS training subsystem, establish priorities, and align resources against those priorities. They use RQ-7Bv2 TUAS issues and feedback from the force to ensure decisions address real concerns from commanders and Soldiers. MER processes will employ best business practices to plan, implement, and sustain the self development training domain. These processes consider both internal and external drivers that impact self development training domain and guide the development, maintenance, and sustainment of the self development training domain.

8.1.3.1 Management

See Paragraph 6.1.3.1

8.1.3.1.1 Strategic Planning

See Paragraph 6.1.3.1.1

8.1.3.1.2 Concept Development and Experimentation (CD&E)

See Paragraph 6.1.3.1.2

8.1.3.1.3 Research and Studies

See Paragraph 6.1.3.1.3

8.1.3.1.4 Policy and Guidance

See Paragraph 6.1.3.1.4

8.1.3.1.5 Requirements Generation

See Paragraph 6.1.3.1.5

8.1.3.1.6 Synchronization

See Paragraph 6.1.3.1.6

8.1.3.1.7 Joint Training Support

See Paragraph 6.1.3.1.7

8.1.3.2 Evaluation

A formal evaluation will be conducted after the training system has been available for self development training for a sufficient time for the training program to stabilize. Typically, this would be within 12 to 24 months after the initial systems are available, or when problems are reported (e.g., high system failure rates or ACOM complaints). This evaluation will determine the training program costs and effectiveness for the systems. Specific areas in the evaluation process include positive and negative aspects of operator and maintainer training, comparison of actual costs to projected costs for all training systems, relationships between self-development training and Soldier proficiency, needed improvements to training in terms of cost, time, and effectiveness, Soldiers perceptions of training, effectiveness, and cost.

8.1.3.2.1 Quality Assurance (QA)

See Paragraph 6.1.1.2.4

8.1.3.2.2 Assessments

See Paragraph 6.1.3.2.2

8.1.3.2.3 Customer Feedback

See Paragraph 6.1.3.2.3

8.1.3.2.4 Lessons Learned/After-Action Reviews (AARs)

See Paragraph 6.1.3.2.4

8.1.3.3 Resource Processes

See Paragraph 6.1.3.3

Item Resourced	Prior	FY13 Yrs or $K	FY14 Yrs or $K	FY15 Yrs or $K	FY16 Yrs or $K	FY17 Yrs or $K	FY18 Yrs or $K
Manpower - TD							
Contractor							
Civilian							
Enlisted							
Warrant							
Officer							
Contract/Spt							

Civ Pay							
Trvl/Per Diem							
Other							

Rationale:

Item Resourced	Prior	FY13 Yrs or $K	FY14 Yrs or $K	FY15 Yrs or $K	FY16 Yrs or $K	FY17 Yrs or $K	FY18 Yrs or $K
New Equipment Training							
Contractor							
Contract/Spt							

Trvl/Per Diem							
Classrooms							
Equipment							
AC/DC Power							
Printing							
Other							

Rationale:

Item Resourced	Prior Yrs or $K	FY13 Yrs or $K	FY14 Yrs or $K	FY15 Yrs or $K	FY16 Yrs or $K	FY17 Yrs or $K	FY18 Yrs or $K
Training							

Products							
Training Pubs							
TSP							
IMI	$ 240k						
ETM							
STP							
IETM							
ARTEP/MTP							
Printing							
Distribution							
Other							

Rationale: IMI development numbers will adjust once fielding nears completion.

Item Resourced	Prior	FY13 Yrs or $K	FY14 Yrs or $K	FY15 Yrs or $K	FY16 Yrs or $K	FY17 Yrs or $K	FY18 Yrs or $K
TADSS							
Training Aids							
Devices							
Simulators							
Simulations							
GTA							
Software							

Trng Equip*							
Equipment							
Printing							
Shipment							
Sustainment							
Other							

Rationale:

Item Resourced	Prior	FY13 Yrs or $K	FY14 Yrs or $K	FY15 Yrs or $K	FY16 Yrs or $K	FY17 Yrs or $K	FY18 Yrs or $K
Facilities/Land							

Facilities							
Land							
Site Surveys							
Concrete Pad							
AC/DC Power							
Equipment							
Maintenance							
Other							

Rationale:

Item Resourced	Prior	FY13 Yrs or	FY14 Yrs or	FY15 Yrs or	FY16 Yrs or	FY17 Yrs or	FY18 Yrs or

		$K	$K	$K	$K	$K	$K
Training Services/TII							
LMS							
Services							
Servers							
Licenses							
IT Support							
Other							

Rationale:

Item	Prior	FY13	FY14	FY15	FY16	FY17	FY18

Resourced		Yrs or $K	Yrs or $K	Yrs or $K	Yrs or $K	Yrs or $K	Yrs or $K
Eval/QA							
Contractor							
Civilian							
Enlisted							
Warrant							
Officer							
Contract/Spt							
Civ Pay							
Trvl/Per Diem							
Facilities							

Equipment							
Printing							
TEA							
PFTEA							
Other							

Rationale:

A Milestone Annex

TRAINING DEVELOPMENT MILESTONE SCHEDULE - SHEET A	PAGE **1** OF **1** PAGES	REQUIREMENTS CONTROL SYMBOL

SYSTEM **RQ-7Bv2 TUAS**	ACAT **2**	OFFICE SYMBOL **ATZQ-TDT-N**	AS OF DATE 11 OCT **13**

POINTS OF CONTACT	NAME	OFFICE SYMBOL	TELEPHONE
MATERIEL COMMAND	**Charles Charlton**	**SFAE-AV-UAS-MAE-L0**	**256-842-7196**
TRADOC PROPONENT	**USAACE**		
TCM	**COL Webb**	**ATZQ-TCM-UAS**	**334-255-1801 DSN:558**
CD:	**COL Stockhausen**	**ATZQ-CD**	**334-255-3203 DSN:558**
TD:	**SFC Simpson**	**ATZQ-TDT-N**	**334-255-9267 DSN:558**
ATSC:	**Kenneth Rich**	**ATIC-DSM**	**757-878-0525 DSN:826**
SUPPORTING PROPONENTS:			

ITEM	DATE	RESPONSIBLE AGENCY/POC	TELEPHONE

MNS:				
SMMP:				
MRD:				
ILSMP:				
TTSP:				
QQPRI:				
BOIP:				
NETP:				
COMMENTS:				

TRAINING DEVELOPMENT MILESTONE	PAGE OF PAGES	REQUIREMENTS CONTROL SYMBOL

SCHEDULE - SHEET B

SYSTEM	TRADOC SYMBOL	AS OF DATE
TRAINING PACKAGE ELEMENT/PRODUCT		

LEGEND:	MILESTONES BY QUARTER															
	FY				FY				FY				FY			
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q

NOTE: Identify **TRAINING DEVELOPMENT MILESTONES** . TRADOC FORM 569-1-R-E provides a detailed list of typical training development products required to support system training integration.

COMMENTS:

NOTE: The following table is optional; however, it is useful for populating SHEET B above and provides greater detail for each milestone. If not used, delete from this section before submitting for staffing.

	Individual Training Plan (Per each ITP)	

	Milestone:	Date
	1. Initial Individual Training Plan (ITP) submitted.	
	2. Annotated task list submitted.	
	3. Course Administrative Data (CAD) submitted.	
	4. Training Program Worksheet (TPW) submitted.	
	5. ITP submitted.	
	6. POI submitted.	
	7. Digitized copy archived.	

	8. Resident course start date (NLT 12 months after FUE).	
	Army Correspondence Course Program	
	(Only as a DL portion of a TATS course)	
	Milestone:	Date
	1. Requirement identified and submitted for approval.	
	2. Requirement approved by HQ TRADOC.	
	3. Development initiated.	
	4. Advance breakdown sheet submitted.	

	5. Digitized camera-ready copy (CRC) submitted.	
	6. Subcourse material ready for replication/distribution.	
	Field Manuals (FMs)	
	Milestone:	Date
	1. Requirements identified.	
	2. Draft FM changes validated.	
	3. FM outlines approved.	
	4. FM coordinating draft	

	completed.	
	5. Print/digitization request initiated.	
	6. Approved digitized CRC submitted.	
	7. Replication/distribution completed.	
	Army Training Literature Note: Includes the Soldiers' Manual (SM), Trainers' Guide (TG), and Army Training and Evaluation Program (ARTEP) products.	
	Milestone:	Date
	1. Analysis completed.	

	2. Draft SM, ARTEP MTP, and TG.	
	3. ATSC staffing.	
	4. Digitized/CRC submitted.	
	5. Replication/distribution completed.	
	Interactive Multimedia Instruction (IMI)/Distance Learning	
	Milestone:	Date
	1. Requirements identified and submitted for approval.	
	2. Requirements approved by ATSC and	

	TRADOC.	
	3. Resources identified.	
	4. Courseware developed and validated.	
	5. Master materials to ATSC for replication and distribution.	
	6. Replication/distribution completed.	
	Training Effectiveness Analysis (TEA)	
	(Conducted in-house, by contract, Training Development and Analysis Activity [TDAA], TRADOC Analysis Center [TRAC], or Program Manager [PM])	

	Milestone:	Date
	1. TEA during capabilities development.	
	2. TEA updated for Milestone Decision Review A.	
	3. TEA updated for Milestone Decision Review B.	
	4. TEA updated for Milestone Decision Review C.	
	5. Post-Fielding TEA (PFTEA) planned.	
	Army Visual Information Production and Distribution Program (DAVIPDP)	

	Milestone:	Date
	1. High risk tasks and jobs identified.	
	2. Storyboards validated.	
	3. DAVIPDP requirements submitted to ATSC.	
	4. Requirements approved by DA.	
	5. Production initiated.	
	6. Replication/distribution completed.	
	Training Aids, Devices,	

	Simulators, and Simulations	
	(TADSS)	
	Milestone:	Date
	1. High risk, hard-to-train tasks identified.	
	2. Need for TADSS identified.	
	3. TADSS concept validated.	
	4. TADSS incorporated into the STRAP (part of the CATS).	
	5. Analytical justification using the TEA provided.	

	6. TSS CDD/ CPD developed, if required.	
	7. TADSS effectiveness validated.	
	8. TADSS incorporated into the ICD, CDD, CPD, STRAP	
	9. MOS-specific milestones/requirements for TADSS developed and incorporated in the integrated training strategy (ITS).	
	Training Facilities and Land	
	Milestone:	Date
	1. Range and facility requirements identified.	

	2. Identification of construction requirements completed.	
	3. Construction requirements submitted to MACOM.	
	4. Requirements validated and updated.	
	5. Supporting requirements identified and availability coordinated.	
	6. Installation and other construction requirements submitted to MACOM.	
	7. Refined construction requirements and range criteria forwarded to MACOM, IMA, Chief of Engineers	

	8. Construction initiated.	
	Training Ammunition	
	Milestone:	
	1. Ammunition identified.	
	2. Initial ammunition requirements validated.	
	3. Requirements included in the ORD.	
	4. Ammunition item developed.	
	5. Validation	

	and test completed.	
	6. Ammunition requirements identified in the ITP.	
	7. Requirements provided to installation/MACOM manager.	
	8. Requirements included in DA Pam 350-38.	
	9. Production entered.	
	Training Equipment	
	Milestone	
	1.	

	2.	
	Training Services	
	Milestone	
	1. Contractor Logistic Support	
	2. Contractor NET Support	
	3. Contractor DET Support	

B References

1. FMI 3-04.155, Army Unmanned Aircraft Systems Operation (INCL CHG 1), 4 April 2006

2. RQ-7BV2 TUAS Capabilities Production Document (CPD), April 2009

4. FM 3-04.111 Aviation Brigades, 7 December 2007

5. AR 95-23 Unmanned Aircraft System Flight Regulations, 14 May 2004

6. TC 1-600 Unmanned Aircraft Systems Commander's Guide And Aircrew Training Manual Oct 07

7. FM 3.04.126 Attack Reconnaissance Helicopter Operations, 16 February 2007

C Coordination Annex

Organization/POC (Date)	Summary of Comments Submitted (A/S/C)			Comments Accepted/ Rejected						Rationale for Non-Acceptance - S, C
				Accepted			Rejected			
	A	S	C	A	S	C	A	S	C	
v2.2.2 James E Baker 2014/07/18 - 2014/07/28	Document Accepted As Written			0	0	0	0	0	0	-
v2.2.1 Approvals - Michael P Donohue 2014/07/18 - 2014/07/28	Document Accepted As Written			0	0	0	0	0	0	-
v2.2.1 Approvals - Robert A Story 2014/07/17 - 2014/07/27	Document Accepted As Written			0	0	0	0	0	0	-
v2.2 Army - PEO Aviation 2014/05/27 - 2014/06/13	12	34	0	12	34	0	0	0	0	
v2.2 Army - USAACE - Aviation School 2014/04/24 - 2014/05/24	No Comments Submitted			0	0	0	0	0	0	-
v2.2 Army - TCM-Virtual (CS/CSS) 2014/04/24 - 2014/05/24	No Comments Submitted			0	0	0	0	0	0	-
v2.2 Army - TCM-Live	No Comments									

2014/04/24 - 2014/05/24	Submitted			0	0	0	0	0	0	-
v2.2 Army - TCM-Gaming 2014/04/24 - 2014/05/24	No Comments Submitted			0	0	0	0	0	0	-
v2.2 Army - TCM Intel Sensors 2014/04/24 - 2014/05/24	No Comments Submitted			0	0	0	0	0	0	-
v2.2 Army - TCM Constructive 2014/04/24 - 2014/05/24	No Comments Submitted			0	0	0	0	0	0	-
v2.2 Army - Space & Missile Defense Command 2014/04/24 - 2014/05/24	No Comments Submitted			0	0	0	0	0	0	-
v2.2 Army - SCoE 2014/04/24 - 2014/05/24	No Comments Submitted			0	0	0	0	0	0	-
v2.2 Army - PM-UAS 2014/04/24 - 2014/05/24	No Comments Submitted			0	0	0	0	0	0	-
v2.2 Army - PEO-STRI Customer Support Group 2014/04/24 - 2014/05/24	Document Accepted As Written			0	0	0	0	0	0	-
v2.2 Army - MSCoE - MANSCEN 2014/04/24 - 2014/05/24	1	0	0	1	0	0	0	0	0	

v2.2 Army - MCoE - Infantry & Armor School 2014/04/24 - 2014/05/24	7	2	4	7	2	4	0	0	0	
v2.2 Army - ICoE - Mil Intelligence School 2014/04/24 - 2014/05/24	10	2	0	10	2	0	0	0	0	
v2.2 Army - FCoE - Field Artillery 2014/04/24 - 2014/05/24	No Comments Submitted			0	0	0	0	0	0	-
v2.2 Army - Combined Arms Center 2014/04/24 - 2014/05/24	No Comments Submitted			0	0	0	0	0	0	-
v2.2 Army - CAC-T; Training Management Dir 2014/04/24 - 2014/05/24	No Comments Submitted			0	0	0	0	0	0	-
v2.2 Army - AVNCoE Aviation Logistics School 2014/04/24 - 2014/05/24	No Comments Submitted			0	0	0	0	0	0	-
v2.2 Army - ATSC TSAID 2014/04/24 - 2014/05/24	No Comments Submitted			0	0	0	0	0	0	-
v2.2 Army - ATSC Fielded Devices	No Comments									

2014/04/24 - 2014/05/24	Submitted	0	0	0	0	0	0	-
v2.2 Army - ARNG-RMQ-RA 2014/04/24 - 2014/05/24	Document Accepted As Written	0	0	0	0	0	0	-
v2.2 Army - Army National Guard 2014/04/24 - 2014/05/24	No Comments Submitted	0	0	0	0	0	0	-
v2.2 Army - Army Material Command (AMC), G3 2014/04/24 - 2014/05/24	No Comments Submitted	0	0	0	0	0	0	-
v2.1 Peer - USASOC 2013/08/12 - 2013/09/11	No Comments Submitted	0	0	0	0	0	0	-
v2.1 Peer - USARC G7 (US Army Reserve Cmd) 2013/08/12 - 2013/09/11	No Comments Submitted	0	0	0	0	0	0	-
v2.1 Peer - USAACE - Aviation School 2013/08/12 - 2013/09/11	No Comments Submitted	0	0	0	0	0	0	-
v2.1 Peer - SCoE 2013/08/12 - 2013/09/11	No Comments Submitted	0	0	0	0	0	0	-
v2.1 Peer - PM-UAS 2013/08/12 - 2013/09/11	No Comments Submitted	0	0	0	0	0	0	-

v2.1 Peer - PEO-STRI Customer Support Group 2013/08/12 - 2013/09/11	Document Accepted As Written			0	0	0	0	0	0	-
v2.1 Peer - MSCoE - MANSCEN 2013/08/12 - 2013/09/11	1	4	0	1	4	0	0	0	0	
v2.1 Peer - MCoE - Infantry & Armor School 2013/08/12 - 2013/09/11	No Comments Submitted			0	0	0	0	0	0	-
v2.1 Peer - ICoE - Mil Intelligence School 2013/08/12 - 2013/09/11	20	0	0	20	0	0	0	0	0	
v2.1 Peer - FCoE - Field Artillery 2013/08/12 - 2013/09/11	7	7	0	7	7	0	0	0	0	
v2.1 Peer - AVNCoE Aviation Logistics School 2013/08/12 - 2013/09/11	No Comments Submitted			0	0	0	0	0	0	-
v2.1 Peer - ATSC 2013/08/12 - 2013/09/11	7	14	3	7	14	3	0	0	0	
v2.1 Peer - Aerial ISR Systems 2013/08/12 - 2013/09/11	No Comments Submitted			0	0	0	0	0	0	-

Key
Completed Review with Comments
Completed Review, No Comments
Active Review Occurring

ATZQ-TD JUL 2 1 2014

MEMORANDUM FOR RECORD

SUBJECT: Approval of the System Training Plan (STRAP) for the RQ-7Bv2 Shadow UAS (Version 2.2)

1. Reference: System Training Plan Version 2.2, RQ-7Bv2 Shadow UAS.

2. The STRAP for the RQ-7Bv2 Shadow UAS is approved. Approved STRAP will be posted to the Central Army Registry (CAR) website. This STRAP can be found at the following web address: http://www.adtdl.army.mil/.

3. The USAACE DOTD POC for this action is: Mr. Andrew Lecuyer, 334-255-2584 DSN (558) email: andrew.b.lecuyer.civ@mail.mil , U.S. Army Aviation Center of Excellence, ATTN: ATZQ-TDT-N, Fort Rucker, AL 36362-5202.

JAMES E. BAKER, JR
Colonel, Aviation
Director of Training and Doctrine

Approval Memo